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U.S. Department
of Transportation

**Research and
Special Programs
Administration**

Tenth Annual Report on Hazardous Materials Transportation

Materials
Transportation
Bureau

Calendar Year 1979

(SERIAL)

Tenth Annual Report
on
Hazardous Materials Transportation

Hazardous Materials Transportation Act
(Title I, Public Law 93-633)

Calendar Year 1979

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Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT/RSPA/MTB-82-1		

4. Title and Subtitle	5. Report Date
Tenth Annual Report of the Secretary of Transportation on Hazardous Materials Control	CY 1979
	6. Performing Organization Code
	8. Performing Organization Report No.
7. Author(s)	

9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
DOT/Research and Special Programs Administration, Materials Transportation Bureau, Washington, D.C. 20590	11. Contract or Grant No. N/A
	13. Type of Report and Period Covered: Annual Report CY 1979
12. Sponsoring Agency Name and Address: N/A	14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

This report is a summary of DOT activity in the field of hazardous material transportation regulation for calendar year 1979. The report includes the year's highlights, and detailed coverage of accident and casualty reporting; technology, research and development; compliance evaluation; training programs; a summary of outstanding problems; and recommendations for additional legislation.

17. Key Words	18. Distribution Statement
hazardous materials transportation hazardous materials regulation accident & casualty reporting	

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified		

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

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TABLE OF CONTENTS

	Page
Hazardous Materials Transportation Safety Program	1
Regulatory Program	3
Compliance Enforcement Program	7
Training and Education Program	11
Hazardous Materials Research and Technology Assessment	13
Program Coordination	15
Hazardous Materials Safety Performance Program	19
Outstanding Problems	23
Appendix A—Exemptions in Effect During 1979	A-1
Appendix B—Hazardous Materials Transportation Technology Assessments for Reports and Programs	B-1
Appendix C—Hazardous Materials Transportation Technology Reports Released in 1979	C-1

LIST OF TABLES

Number	Title	Page
1	Exemptions Processed in 1979	6
2	Hazardous Materials Inspections and Investigations	7
3	Hazardous Materials Inspectors	8
4	Hazardous Materials Regulations Violations and Enforcement Actions	9
5	Approval and Registration Activities	10
6	Training Conducted by Transportation Safety Institute	11
7	Hazardous Materials Education Program	12
8	Hazardous Materials Awareness Seminars in 1979	12
9	Incident Reports and Investigations	20
10	Injuries, Deaths, and Damages Involving Hazardous Materials for Calendar Years 1971-1979	21

LIST OF ILLUSTRATIONS

	Page
MTB Relationships with other Agencies Concerned with the Transportation of Hazardous Materials	16

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HAZARDOUS MATERIALS TRANSPORTATION SAFETY PROGRAM

The Department of Transportation (DOT) is the primary Federal agency responsible for setting safety standards for the transportation of hazardous materials by all modes of transport. The Hazardous Materials Transportation Act of 1974 (Title I of Public Law 93-633) provides the primary legislative authority for the Department's hazardous materials program. However, provisions of a number of other related statutes also guide the program. Included among these laws are the Dangerous Cargo Act of 1940, the Transportation of Explosives Act*, Sections 601(c) and 902(h)(l) of the Federal Aviation Act of 1958, the Tank Vessel Act of 1936, the Ports and Waterways Safety Act of 1972, the Federal Railroad Safety Act of 1970, and section 311 of the Federal Water Pollution Control Act Amendments of 1972.

Under this enabling legislation, the Department of Transportation conducts a coordinated multimodal regulatory program which accommodates the increasing diversity and complexity of hazardous material and packaging technology; the requirement for shipping materials over greater distances; more intermodal transfer operations; and increasing international transportation of hazardous materials. The hazardous materials program is conducted through five of the Department's operating administrations, which, although delegated separate responsibilities, cooperate to provide a consistent approach and preclude duplicative actions.

The Materials Transportation Bureau (MTB) formulates, revises, and issues hazardous materials regulations and exemptions other than those pertaining to bulk shipments by vessels. With responsibility for enforcement of regulations other than those applicable to an individual mode of transportation, the MTB places primary emphasis on container manufacturers and reconditioners and multimodal shippers of hazardous materials.

The United States Coast Guard (USCG), the Federal Aviation Administration (FAA), the Federal Highway Administration (FHWA), and the Federal Railroad Administration (FRA) contribute to the development of substantive provisions of regulations and conduct research and development. These operating administrations plan and carry out inspection, compliance, and enforcement actions applicable to the marine, air, highway, and railroad modes of transport respectively. The USCG also issues and enforces regulations applicable to bulk transportation of hazardous materials by the marine mode.

The Department's hazardous materials program aims at equitable and uniform regulation and consistent implementation through enforcement and assistance.

* Sections 831 through 835 of Chapter 39 of Title 18, United States Code, which were repealed on November 30, 1979.

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REGULATORY PROGRAM

Domestic Standards. During calendar year 1979, the Materials Transportation Bureau completed 18 rulemaking actions which resulted in a series of amendments to the Hazardous Materials Regulations in Title 49, Code of Federal Regulations, Parts 100–189. These amendments were oriented toward updating, clarifying and improving the hazardous materials program. Amendments published:

- Permit the use of the updated edition of the Compressed Gas Association's Pamphlet C-6 for visual inspection of compressed gas cylinders (Docket HM-22; effective date: January 18, 1979).
- Update the reference in Section 171.7 to the International Maritime Dangerous Goods Code (IMCO) in order to recognize Amendments 14-76 and 15-77 to the Code (Docket HM-22; effective July 1, 1979).
- Update the reference in Section 171.7(d)(1) to the ASME Boiler and Pressure Vessel Code in order to recognize the 1977 edition of the ASME Code and addenda thereto through December 31, 1978. (Docket HM-22; effective July 18, 1979).
- Provide a specification for a glass carboy in an expanded polystyrene packaging, authorize use of this new specification packaging with various materials and delete eight obsolete specification packagings. (Docket HM-117; effective date: May 11, 1979; however shipments may be prepared, offered for transportation and transport in accordance with these amendments beginning March 12, 1979).
- Incorporate into the Hazardous Materials Regulations a number of changes based on the data and analysis supplied in selected exemption applications or from existing exemptions (Docket HM-139A; effective date: April 12, 1979).
- Amend the Hazardous Materials Regulations by incorporating therein changes based on the existing exemptions which have been granted to individual applicants allowing them to perform particular functions in a manner that varies from that specified by the regulations (Docket HM-139B; effective date: October 18, 1979).
- Change in the requirements for materials known as ammonium nitrate fuel oil mixtures. Among these are (1) a provision that testing may be done by the manufacturer; (2) only the blasting cap sensitivity test need be passed; (3) written reports of the tests must be submitted to the Associate Director for Operations and Enforcement (OE); and (4) the required usage of the proper shipping name "ammonium nitrate-fuel oil mixtures" for such materials. The notification and approval requirements have also been consolidated into Section 173.114a rather than being referenced in Section 173.86. A provision which allows materials presently properly described, offered, and transported as nitrocarbonitrate to continue to be shipped under that description until December 31, 1980, is included in this revision. Minor changes in other parts and sections of the final rule have been made to accommodate the addition of the "ammonium nitrate-fuel oil mixture" entry (Docket HM-143; effective date: August 15, 1979; however, shipments may be prepared, offered for transportation, and transported in accordance with these amendments beginning May 31, 1979).
- Renew the limited exemptions for air transport of small quantities of materials exhibiting very low levels of radiation. These materials do not present a significant hazard to passengers or crewmembers aboard an aircraft (Docket HM-149B; effective date: May 3, 1979).
- Restate requirements applicable to colors specified for labels printed directly onto the surface of packagings used in the transportation of hazardous materials (Docket HM-151A; effective date: March 19, 1979).
- Amend the regulations pertaining to flattening tests by deleting the requirements that certain seamless cylinders by hydrostatically tested prior to the flattening test and by requiring that the longitudinal axis of the cylinder be perpendicular to the knife edges during flattening testing. This amendment allows flexibility as to when the sample cylinder may be selected, and assures uniformity in the procedures used in performing the flattening tests (Docket HM-156; effective date: January 29, 1979).
- Allow shipments of asbestos when packaged in bags or other non-rigid packagings to be transported in closed freight containers, motor vehicles, or rail cars when loaded by the consignor and unloaded by the consignee; or in bags and other non-rigid packagings that are dust and sift proof which are palletized and unitized. Unitized loads in slings need not be palletized during transportation by vessels (Docket HM-160; effective date: August 20, 1979).

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- Prescribe appropriate shipping descriptions and hazard class designations for detonators and detonating primers (Docket HM-161; effective date: January 1, 1980).
- Provide for the continued use of approvals and authorizations issued by the Bureau of Explosives even though DOT delegation has been withdrawn and assumed by the Associate Director for Operations and Enforcement (OE). It also provides a means whereby approvals or authorizations may be amended or extended (Docket HM-163A; effective date: March 26, 1979).
- Transfer from the Transportation Systems Center to the Bureau's Associate Director for Operations and Enforcement (OE) responsibility for: (1) approving cigarette lighters or other ignition devices (Section 173.21(d); (2) registering container manufacturers' mark or symbol; and (3) receiving and maintaining reports required to be filed in connection with hazardous materials shipping containers and packagings. Specifically, these changes to the regulations (1) provide that the Associate Director for OE will issue approvals for cigarette lighters and similar ignition devices based on his review and acceptance of the results of examinations and tests performed for the applicant by test facilities recognized by the Materials Transportation Bureau, and (2) require registration of container manufacturers' marks, symbols, and the filing of reports directly with the Associate Director for OE. MTB is also identifying the Bureau of Explosives as the initial recognized test facility for the examination of cigarette lighters (Docket HM-163C; effective date: September 27, 1979).
- Withdraw or cancel the remaining delegations of authority to the Bureau of Explosives in Part 178 of Title 49, Code of Federal Regulations (Docket HM-163B; effective date: November 19, 1979).
- Change the preparation of the dangerous cargo manifest; requirement for cargo inspection; specific requirements for certain materials regulated for water shipments only; and several other miscellaneous changes (Docket HM-166; effective date May 21, 1979).
- Update for following actions: (1) revision of the definition of "Hazardous Material" in § 171.8; (2) correction of the telephone number in § 171.15(b) for reporting hazardous materials incidents; (3) a provision in § 173.7 to authorize any shipper to reship packagings which were originally shipped by the Department of Defense; (4) clarification that the preparation and accuracy of the dangerous cargo manifest is binding upon any person designated for this purpose by the water carrier; (5) deletion of the authorization in § 178.59-21 in its entirety for the use of 4130X steel, and (6) reinstatement of the requirement in § 178.83-11 that DOT Specification 5C barrels or drums used for nitric acid service must be embossed or stamped with the tare weight in pounds Docket HM-166A; effective date: August 23, 1979.
- Place all requirements in Parts 172 and 173 of Title 49 for the making of tank car tanks with the proper shipping name or the authorized common name. In most cases, the regulations provide that tank car tanks transporting certain materials be marked in accordance with the requirements of 172.330. However, the marking requirements in several sections of Parts 173 and 179 are conflicting and place the burden of compliance with the requirements on both the shipper and the tank car builder. This change insures that the responsibility for these particular marking requirements will be uniform and will rest with the shipper and not the tank car builder (Docket HM-170; effective date: January 1, 1980).

Sixteen Notices of Proposed Rulemakings and approximately fifteen miscellaneous publications dealing with various subjects such as inconsistency rulings, agenda announcements on meetings concerning the international hazardous materials regulations, public meetings on the use of polyethylene in packagings used for hazardous materials, and extensions of comment period on certain dockets were published in 1979. Of the 16 Notices of Proposed Rulemakings, there were several which are of particular importance because of their potential impact, primarily to shippers and carriers. These notices involve establishing requirements for the transportation of cryogenic liquids and hazardous substances, improving the identification of hazardous materials and the communication of information to emergency response personnel at transportation incident sites, and standardizing the radioactive materials regulations with the internationally accepted International Atomic Energy Agency regulations. These notices will result in significant changes to the hazardous materials regulations in the near future.

International Standards. The Department of Transportation participates in the development of international hazardous materials transport standards to assure that United States hazardous materials transportation policy and practices are considered in the development of any world standards. The United States position has been to promote a world-wide system that provides necessary consistency between modal and regional recommendations to insure that, insofar as practical, hazardous materials shipments may move freely between the various modes and regions of the world in full compliance with the applicable regulations.

The public's awareness of the Materials Transportation Bureau's involvement in international activities increased markedly during calendar year 1979. Much of this increased interest can be attributed to the three rulemakings currently underway which have their origins in either United Nations

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or Inter Governmental Maritime Consultative Organization Recommendations. In addition, however, it is clear that much of this interest is also due to the increased application of these international standards by a number of governments throughout the world, which in turn, results in a direct impact of these standards on United States' shippers and carriers involved in export trade.

The MTB continued its program of holding periodic public meetings intended to inform the public of work underway in various international bodies and of the position being taken by the United States on matters of general interest. The reaction to these public meetings continues to be favorable. An increasing number of organizations have approached the MTB with requests to initiate particular actions at various international organizations or for assistance in obtaining approvals or information from foreign governments. One interesting trend is indicated by increased requests for DOT involvement in the work of the United Nations (UN) organizations which develop the regulations governing the transportation of hazardous materials by rail and highway in Europe. This trend presumably results from an increased incidence of frustrated shipments as a result of differences between these regulations and the DOT regulations. During 1979:

- The USCG provided primary United States' representation at the Subcommittee on the Carriage of Dangerous Goods (CDG) of the Inter Governmental Maritime Consultative Organization (IMCO). The MTB was invited by the Coast Guard to participate in the session. This Subcommittee is the international body responsible for the development of world-wide standards for the transport of hazardous materials in the marine mode. The primary accomplishment at IMCO, from the MTB point of view, was the continuing effort by the CDG Subcommittee to bring the International Maritime Dangerous Goods Code (IMDG Code) into alignment with UN Recommendations in order to provide a basic intermodal consistency regarding the description, classification, marking, labeling, and packaging of hazardous materials. Of particular note regarding this effort was the adoption by IMCO of new recommendations on the preparation of transport documentation based on UN Recommendations and consistent with current DOT regulations.
- The MTB provided primary United States' representation at the Dangerous Goods Panel. The ICAO Dangerous Goods Panel was established in 1977 and charged with the task of drafting an Annex to the Chicago Convention that would provide basic requirements for the safe transport of dangerous goods by air and with the development of detailed Technical Instructions which would encourage a uniform implementation of basic Annex provisions by governments. This has imposed a heavy workload on the MTB since the ICAO work has entered a critical period at this time with the draft Annex undergoing final review in the ICAO hierarchy and the proposed implementation date of July 1, 1981.
- The MTB participated in the Group of Experts on the Transport of Dangerous Goods of the Economic Commission for Europe. This group is responsible for the updating and revision of the European Agreement Concerning the Carriage of Dangerous Goods by Road (ADR). Very significant amendments to the European road and rail conventions, which would incorporate UN classification and grouping criteria for certain classes as well as UN packaging performance tests, were under consideration. The adoption of these amendments would greatly facilitate United States exports into Europe by insuring that the RID and ADR are consistent with the applicable IMCO requirements. Also under consideration at this session were amendments which would prohibit the use of quenched and tempered steels (which are used extensively in the United States) in the construction of tanks intended to transport gases. No final decisions were taken in either of the two basic areas. Further consideration is scheduled during the 1980 meeting.
- The MTB participated in the work of three groups of the International Atomic Energy (IAEA). The first was an Advisory Group on Radiation Protection Principles which examined and made recommendations concerning the basic principles on which the international transportation regulations for radioactive materials are based. The second meeting was the Technical Committee on Package Test Standards which evaluated the packaging standards. MTB succeeded in having the IAEA agree to minimum test standards for LSA packaging. The third meeting was the Scientific Committee planning session for the Sixth International Symposium on the Packaging and Transportation of Radioactive Materials (PATRAM '80) which will be held in November, 1980. Planning at this particular session involved establishing an agenda and choosing topics to be covered. In 1980, there will be six international meetings concerning radioactive materials transport.
- The MTB participated in the Group of Rapporteurs and the Group of Experts on Explosives, the subsidiary bodies of the Committee of Experts on the Transport of Dangerous Goods. The MTB is the agency charged to represent the United States. In the Group of Rapporteurs, a preliminary detailed examination of the need and desirability of a world-wide, multimodal dangerous goods convention was conducted. In addition, work was begun on the development of a UN standard for portable tanks intended to carry gases. Work also continued on the development of an internationally recognized standard

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for the construction of seamless gas cylinders. In the Group of Experts on Explosives, a great deal of progress was made in establishing classification procedures and test methods that will, in the future, insure consistent results in explosives classification regardless of the country in which the tests are conducted. It is expected that during 1980, the Committee will conclude its consideration and arrive at final or interim conclusions on those matters.

Continued participation by the DOT in these efforts is considered essential. The impact of the recommendations and regulations issued by these organizations is felt directly by the United States' industries involved in the international sale and distribution of hazardous materials. The most recent figures available indicate that the United States currently enjoys a positive balance of trade in chemicals (excluding petroleum products) estimated to be in excess of 6 billion dollars. Insuring that the requirements developed by these bodies promote safety in the international transportation of hazardous materials which, at the same time, do not hinder the free movement of these materials by creating artificial trade barriers, requires a continued commitment on the part of the Department.

Exemptions. An exemption from the Hazardous Materials Regulations may be issued based on an application submitted in accordance with 49 CFR 107.103, but only where an acceptable level of safety has been established. The application is reviewed and analyzed to determine whether a level of safety under the proposed conditions will be equivalent to that prescribed in the existing regulations or consistent with public interest and the policy of the Hazardous Materials Transportation Act. Table 1 summarizes exemptions applications processed during 1979. Appendix A comprises a list of all exemptions in effect during 1979.

Termination of Exemptions. The exemption conversion program exists to terminate exemptions and convert the provisions of those exemptions into regulations of general applicability. The objective of the program is to improve the quality of hazardous materials regulations through comprehensive review and revision on a continuing basis. Prior to this program, many exemptions were reviewed continually every two years. During 1979, the MTB published one Notice of Proposed Rulemaking proposing to terminate 23 exemptions and two final amendments effectively eliminating 33 exemptions. The exemption conversions resulted in the addition of five new commodity descriptions to the hazardous materials table; authorization for the shipment of 22 materials in various DOT specification containers; an increase in the weight authorized for one container; and an authorization to ship by water for another commodity.

Table 1

Exemptions Processed in 1979

Mode	Routine Exemptions				Emergency Exemptions	
	Applications			Grants	Applications	Grants
	New	Renewal	Total			
Motor Vehicle	56	140	196	154	10	7
Rail Freight	10	27	37	19	2	0
Cargo Vessel	6	7	13	11	0	0
Cargo-Only Aircraft	6	9	15	14	7	3
Passenger-Carrying Aircraft	1	2	3	4	0	0
Intermodal	104	245	349	306	2	2
Total[1]	**183**	**430**	**613**	**508**	**21**	**12**

[1] Withdrawals of Exemption Applications - 13 Denials of Routine Exemptions - 40 Applications Pending as of December 31, 1979 - 355

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COMPLIANCE ENFORCEMENT PROGRAM

The Department's hazardous materials compliance and enforcement program is designed to reduce the number of transportation incidents and the risk of catastrophic occurrences that may result from violation of the hazardous materials regulations. Through the use of inspection and surveillance, coupled with appropriate enforcement actions, the Department aims to encourage compliance and to deter industry members from knowingly violating the regulations. During 1979:

- The Department had 236.6 work years available for the hazardous materials compliance enforcement program. Safety inspectors conducted a total of 26,778 inspections of facilities, 66,669 inspections of transport vehicles, and 9,809 accident investigations. Table 2 contains a modal breakdown of these inspection and investigation activities, and Table 3 summarizes the number of inspectors available for this function. The considerable expertise and valuable experience in transport represented by these inspectors are essential to the effective enforcement of the Hazardous Materials Regulations. Table 4 summarizes enforcement actions for each operating administration.
- The Coast Guard personnel performed a variety of safety functions. Vessels are boarded to ensure compliance with regulations under Titles 33, 46, and 49 Code of Federal Regulations (CFR). Dangerous cargo manifests, stowage, and segregation are examined, and overall compliance with these regulations is verified. The Captain of the Port Offices report all violations to the Coast Guard District Commander, who initiates and carries out penalty assessment procedures.

Table 2

Hazardous Materials Inspections and Investigations Calendar Years 1978–1979

	USCG		FAA		FHWA		FRA		MTB		Total	
	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979
Operations/Facilities												
Carriers			6,506	6,334	1,521	1,556	2,014	1,583	15		10,056	9,473
Shippers					1,203	1,343	672	640	72	62	1,947	2,045
Container Manufacturers					95		109	118	32	109	236	227
Drum Reconditioners										90		90
Freight Forwarders							114	84	6	33	120	117
Waterfront	16,865	14,794									16,865	14,794
Other									44	32	44	32
Vehicles/Vessels												
Railroad Tank Cars							16,208	15,926			16,208	15,926
Railroad Freight Cars							7,783	7,620			7,783	7,620
Vessels	40,886	39,643									40,886	39,643
Motor Vehicles					3,790	3,470					3,790	3,470
Accidents/Incidents	4,135	9,148	150	142	398	121	405	398	2		5,090	9,809
Totals	**61,886**	**63,585**	**6,656**	**6,476**	**7,007**	**6,490**	**27,305**	**26,369**	**171**	**236**	**103,025**	**103,246**

Table 3

Hazardous Materials Inspectors - 1979

Operating Administration	Full-Time Inspectors	Part-Time			Total Work - Years
		Inspectors	Percent of Time	Work - Years	
USCG	0	770	15	115.5	115.5
FAA	12	623	4	24.9	36.9
FHWA	9	152	25	38.0	47.0
FRA	19	61	15	9.2	28.2
MTB	9	0	0	0	9.0
Totals	**49**	**1606**		**187.6**	**236.6**

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Table 4

Hazardous Materials Regulations Violations and Enforcement Actions

Operating Administration	Action	1978	1979	Change
	Violation for which:			
U.S. Coast Guard	Civil Penalty Actions Initiated[1]	3,108	2,204	– 904
(Bulk and Nonbulk)	Civil Penalty Actions Completed	930	946	+ 16
	Total Collected	*$350,018*	*$456,305*	*+ $106,287*
	Average Penalty Collected	*$376*	*$482*	*+ $106*
Federal Aviation Administration	Administrative Actions[1]	111	95	– 16
	Civil Penalty Actions Initiated	146	93	– 53
	Civil Penalty Actions Completed	111	8	– 93
	Fines Collected	*$136,325*	*$4,500*	*– $131,825*
	Average Penalty Collected	*$1,228*	*$563*	*– $665*
Federal Highway Administration	Criminal Cases Initiated	0	0	0
	Criminal Cases Completed	5	1	– 4
	Fines Collected	*$12,300*	*$17,000*	*+ $4,700*
	Average Fine	*$2,460*	*$17,000*	*+ $14,540*
	Civil Penalty Actions Initiated	85	176	+ 91
	Civil Penalty Actions Completed	37	92	+ 55
	Fines Collected	*$218,800*	*$333,250*	*+ $114,450*
	Average Fine	*$5,905*	*$3,622*	*– $2,283*
	Cases Closed Without Prosecution	8	11	+ 3
Federal Railroad Administration	Criminal Cases Initiated	0	0	0
	Criminal Cases Completed	13	2	– 11
	Fines Collected	*$1,650*	*$1,300*	*– $350*
	Average Fine	*$825*	*$650*	*– $175*
	Prosecution Declined by Department of Justice	9	10	+ 1
	Pending 12/31/79	2	1	– 1
	Civil Penalty Actions[2]	27	95	+ 68
	Total Collected	*$257,575*	*$636,020*	*+ $378,445*
	Average Penalty Collected	*$9,540*	*$6,695*	*– $2,845*
Materials Transportation Bureau	Civil Penalty Actions Initiated	32	19	– 13
	Civil Penalty Actions Completed	23	24	+ 1
	Compliance Orders Initiated	2	3	+ 1
	Compliance Orders Completed	2	5	+ 3
	Total Collected	*$46,050*	*$47,050*	*+ $1,000*
	Average Penalty Collected	*$2,002*	*$,1,960*	*– $42*
	Warnings	61	127	+ 66

[1] The FAA may take administrative action in lieu of civil penalty when an alleged violation resulted in no significant unsafe condition, there was no lack of competency or qualification involved, the violation was not deliberate, and the alleged violator has a satisfactory attitude towards complying with the regulations.

[2] Includes only alleged violations of Regulations contained in 49 CFR Parts 100-199. Prior to 1978, all hazardous materials cases were criminal actions under 18 U.S.C., Sec. 831-835. The civil penalties available under Section 110(a) of the Hazardous Materials Transportation Act. (49 U.S.C. 1809) were first utilized in 1978. As a result no criminal actions were filed in 1978.

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- The MTB completed its first full year of activity associated with approval functions. The approval of foreign cylinders manufacturers under § 173.300b, the Independent Inspection Agencies under § 173.300a, and the registration of cylinder retesters by a "qualified approval" process were implemented during the year. Table 5 summarizes the registration and approval activities for the MTB.
- The MTB initiated the process of withdrawal of delegations of authority to the Bureau of Explosives of the Association of American Railroads in 1978. By the end of 1979, MTB had withdrawn approximately 88% of these delegations and had vested the authority formerly granted the Bureau of Explosives with the Associate Director for Operations and Enforcement. During the process of withdrawal, many delegations were converted to specification standards, eliminating the need for Departmental approval, thereby reducing the administrative burden for the MTB and the associated burden on the regulated industries.

Table 5

Approval and Registration Activities for 1979

Type of Activity	Number
Foreign Cylinder Manufacturers	3
Foreign Independent Inspector Agencies	4
Cylinder Retesters	311
Drum Reconditioners	40
Specification 35 Pail Manufacturers	3
Specification 17H (18 Gauge Head) Manufacturers	1
Specification 39 Cylinder Manufacturers	2
Specification 1M Carboys	4
Cigarette Lighter & Packaging	15
Symbol Change (Cylinders) Approvals	105
Explosive Packaging	7
Total Registration/Approvals	**495**

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TRAINING AND EDUCATION PROGRAM

To foster safety, the Department of Transportation balances the Federal enforcement effort with a program to educate part-time and incidental handlers and transporters of hazardous materials, as well as DOT inspectors, regarding the provisions of the regulations, particularly those covering packaging and communication of hazards. During 1979:

- The Transportation Safety Institute (TSI) conducted in-depth seminars on hazardous materials designed to teach DOT and non-DOT personnel how to use and comply with the hazardous materials regulations. TSI also conducts workshops to train emergency services personnel in identification of hazardous materials and handling of hazardous materials accidents. The operating administrations provide associate instructors for the courses. Table 6 provides a summary of 1979 courses and attendees.
- The MTB and modal operating administrations conducted additional training sessions and routinely participated in private industry-sponsored training programs. Table 7 identifies activities of 1979, and Table 8 lists the awareness seminars conducted by MTB, in some cases with assistance from the modal administrations. In addition to these meetings and training sessions, the MTB and the operating administrations provided assistance to individual members of the regulated population through correspondence, telephone conversations, and appointments.
- The MTB provided approximately 35 different kinds of educational materials, mainly pamphlets and posters, for distribution at trade association meetings, training sessions, and other meetings where there is an interest in regulatory provisions. In 1979, the MTB distributed over 752,000 pieces of handout materials at seminars and in response to approximately 6,000 written or telephoned requests.
- The MTB revised and expanded the 1979 edition of the Emergency Action Guide for Selected Hazardous Materials. The manual outlines the hazards of certain hazardous materials most frequently transported in bulk and contains technical information which will

Table 6

Training Conducted by the Transportation Safety Institute

		No. of Classes	No. of Students
Air Transportation of Hazardous Materials	FAA Safety Inspectors	5	76
Motor Carrier Transportation of Hazardous Materials	FHWA Investigators; State Personnel	2	37
Air Transportation of Hazardous Materials (Industry)	Air Carrier, Air Taxi, Air Shipper Personnel	1	18
Intermodal Transportation of Hazardous Materials	Industry and State Personnel	7	144
Rail Transportation of Hazardous Materials	FRA Inspectors	3	42
Emergency Services Workshop	State Training Officials and Emergency Services	23	1,437
Nonresident Programmed Instruction	Industry and Government Personnel	N/A	465
Transportation of Hazardous Materials Seminar	Industry and State Personnel	5	314
Totals		**46**	**2,533**

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help emergency personnel during the first 30 minutes following a spill involving volatile, toxic, gaseous and/or flammable materials shipped in bulk.

- The MTB cooperated with the USCG in the development of a series of slide/tape training programs designed to present an awareness of the hazardous materials regulations.

Success of the DOT hazardous materials safety program depends on open communication between the regulated population and the regulatory agencies. Throughout the year, MTB and operating administration personnel participated in numerous meetings at the request of trade associations, industry groups, and other agencies to foster understanding of and compliance with the Hazardous Materials Regulations.

Table 7

Hazardous Materials Education Program

Sponsor	Orientation	Sessions	Attendees
FAA	Aviation Safety Inspectors	87	534
	Air Carriers, Freight Forwarders, Shippers, Aircraft Operators, Other Industry Personnel	656	3,434
FRA	States, Rail Carrier Operating Personnel, Shippers	17	3,045
FHWA	Industry and State Personnel	849	42,450
USCG	Industry	9	526
	Coast Guard Personnel	22	630
MTB	Industry, State and Federal Personnel	4	655
	Trade Associations, Other Industry Meetings	10	765
Totals		**1,654**	**52,039**

Table 8

Hazardous Materials Awareness Seminars in 1979

Date	Location	Attendees
Government Agencies		
April 2–6	Oakland, California (Military Traffic Management Command School)	500
April 11	Fort Eustis, Virginia (U.S. Army Transportation School)	60
September 13	Fort Eustis, Virginia (U.S. Army Transportation School)	60
September 14	Yorktown, Virginia (U.S. Army Transportation School)	35
Other Organizations		
January 10	Baltimore, Maryland (Safety Council of Maryland)	45
February 15	Newark, New Jersey (Chemical Industry Association)	80
February 22	Washington, D.C. (National Symposium of Emergency Medical Services in USA)	50
April 23	New Orleans, Louisiana (Tulane Institute on Foreign Transportation and Port Operations)	250
May 14	Catonsville, Maryland (Catonsville Community College)	20
May 17	LaPlata, Maryland (Charles County Community College)	50
October 11	Washington, D.C. (ATA Northeastern Motor Claim Conference)	75
November 5–7	Olympia, Washington (National Conference of State Transportation Specialists)	65
Novermber 26–27	Baltimore, Maryland (Maryland Port Administration)	80
December 6	Washington, D.C. (North Atlantic Port Association)	50

Total Seminars—14
Total Attendees—1420

HAZARDOUS MATERIALS RESEARCH AND TECHNOLOGY ASSESSMENTS

To provide technical data and information necessary to support the hazardous materials regulatory and compliance enforcement program, the Department utilizes the services of private and Federal research and development facilities. Appendix B lists the projects conducted and reports issued in 1979. Project highlights in 1979 include:

- The MTB completed the evaluation of current and future risks associated with trucking liquefied natural gas (LNG) from the Distrigas Terminal in Everett, Massachusetts. The study is designed to provide technical background information on control options to reduce risk levels in the highway transportation of LNG in terms of driver training, selective routing, and alternative modes of transportation.
- The FHWA awarded a contract to develop criteria for designating routes for the highway movement of hazardous materials. The criteria are intended to be used by State and local governments to evaluate routes to determine those with the least exposure and lowest risk of accident. Conclusions may lead to development of a rulemaking to improve nation-wide routing potential alternative transportation modes, such as barge or rail transport. In addition, the affects of possible risk control options were also evaluated in terms of route changes, timing modification, and other alternatives.
- The MTB completed the risk analysis study of air versus other modes of transportation for explosives and cryogenic liquids. The study proposed a method for assessing the comparative risks of transportation of hazardous materials by alternative routes and modes and applied the method to the transport of certain restrictions similar to those developed for radioactive materials.
- The FHWA initiated with the TSC the computerization of MC 330 and 331 Cargo Tank Inventory and Reinspection Reports. This data will provide instant information concerning cargo tanks available to transport liquefied energy gases and anhydrous ammonia.

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PROGRAM COORDINATION

Recent statutes have directed other Federal agencies to develop hazardous materials regulatory programs, particularly those preventing risks to health and the environment. Consequently, the department is substantially increasing its coordination with other agencies in the development of safety standards for hazardous materials handling and transportation. The accompanying chart illustrates the relationship and degree of coordination involved among the other agencies concerned with the transportation of hazardous materials. Coordination and cooperation extend to other governmental bodies in international standards development and to industry through various educational activities. In 1979:

- The USCG with the Department of the Army and Navy continued efforts in the development and testing of freight container cargo restraint systems, specially designed for carriage of palletized military explosives, and in the adoption for use and certification of commercial freight containers for carriage of military explosives.
- The USCG continued working with the Department of Defense in the planning and development of improved systems for the dynamic testing of packaging and cargo container restraint system.
- The DOT and Environmental Protection Agency (EPA) are working together to develop joint regulations for toxic substances which will incorporate EPA handling and distribution criteria into DOT transportation standards. In addition, DOT has proposed incorporating materials identified by EPA as hazardous materials substances (under Section 311 of the Federal Water Pollution Control Act) into identification and spill reporting requirements of the hazardous materials transportation regulations.
- The DOT and the Nuclear Regulatory Commission (NRC) formally signed a revised Memorandum of Understanding (MOU) which delineates their respective responsibilities for regulating the transportation of nuclear materials. Under the terms of that MOU, the responsibility for developing regulations for transportation of low specific activity radioactive materials is now assigned to the DOT. Previous inconsistencies in the regulations for low specific activity radioactive materials will be resolved as the requirements are consolidated in the DOT regulations.
- The Department, through FAA, FHWA, and MTB continued a joint program with the NRC establishing two-year support agreements with states for surveillance of radioactive materials in transit. This program is expected to increase state expertise, to provide a substantial addition to the existing data base on nuclear materials transportation, to support Federal rulemaking, and to provide increased compliance information.
- The Department's National Response Center (NRC) operated by the USCG maintains a close association with CHEMTREC. Both response centers provide toll-free 24-hour service to personnel responding to oil or chemical emergencies; the NRC to assist in the abatement of water pollution and CHEMTREC to assist emergency services handling chemical incidents of all types.

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MATERIALS TRANSPORTATION BUREAU

RELATIONSHIPS WITH OTHER AGENCIES CONCERNED WITH THE TRANSPORTATION OF HAZARDOUS MATERIALS

Subject	Agency	Relationship
International standards and regulations	Department of State	MTB represents the United States on several international committees which are responsible for promulgation of international hazardous materials transportation standards. Among these are: UN Committee of Experts on the Transportation of Dangerous Goods International Civil Aviation Organization Economic Commission for Europe—Inland Transport Committee
Transportation of explosives	Department of Treasury	MTB modifies its regulations for the transportation of explosives as appropriate to take into account the special requirements of the Treasury Department's Bureau of Alcohol, Tobacco, and Firearms—in the shipment of samples for enforcement purposes, for example.
	Department of Defense (DOD)	MTB has delegated certain functions to the Defense Department to assist in the safe and rapid movement of materials necessary to national security. DOD has developed publications for use in the handling and loading of explosives and hazardous materials which supplement MTB's regulations. MTB reviews DOD's internal regulations for transporting explosives.
	Department of the Interior	The Bureau of Mines develops test criteria for classification of explosives for use in the implementation of MTB's regulations.
Pesticides	Environmental Protection Agency (EPA)	MTB reviews EPA's regulations (FIFRA standards) as they relate to the transportation of hazardous materials.
Etiologic agents	Department of Health, Education, and Welfare (HEW)	HEW's Center for Disease Control provides MTB with technical information necessary to the development of regulations for the transportation of etiologic agents.
	Department of Agriculture (USDA)	MTB consults with USDA concerning the impact and application of MTB's regulations for the transportation of certain animal pathogens classified as etiologic agents.
Radioactive materials	Nuclear Regulatory Commission (NRC)	MTB consults with NRC on rulemaking for transportation of radioactive materials, and cooperates on joint investigation of accidents involving radioactive materials. This relationship has been formalized in a Memorandum of Understanding between the two agencies.
	Department of Energy	MTB and the Department of Energy cooperate on research efforts related to radioactive materials transportation.
Classification criteria	Department of Labor (DOL)	MTB and DOL's Occupational Safety and Health Administration each has some authority over regulating hazardous materials and thus cooperate to develop and promulgate compatible standards for handling and transporting them. This cooperation resulted in joint resolution of classification standards for flammable and combustible liquids.

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Subject	Agency	Relationship
	Consumer Product Safety Commission (CPSC)	MTB and CPSC cooperated in the development of new classification criteria for toxic materials, corrosive materials, flammable solids, and oxidizers based on evaluation of hazard presented by different packaging sizes.
Hazardous wastes	Environmental Protection Agency (EPA)	EPA's statutory authority to regulate hazardous wastes overlaps the authority of MTB over hazardous materials transportation, and the two agencies are concerned that those involved in transporting hazardous wastes not be confronted with two sets of inconsistent regulations. EPA and MTB thus developed joint regulations, incorporating EPA's definitions of and handling criteria for hazardous wastes into MTB's transportation standards.
Toxic substances	Environmental Protection Agency	The Toxic Substances Control Act, which provides EPA extensive authority to regulate new chemicals, which pose an unreasonable risk of injury to health or the environment, contains provisions which overlap those of the Hazardous Materials Transportation Act. To prevent issuance of conflicting regulations, MTB and EPA are working to develop joint regulations for toxic substances which will incorporate EPA handling and distribution criteria in MTB's transportation standards.
Hazardous substances	Environmental Protection Agency	MTB has proposed incorporating materials identified by EPA as hazardous substances (under section 311 of the Federal Water Pollution Control Act) into identification and spill reporting requirements of the hazardous materials transportation regulations.
Accident investigations	National Transportation Safety Board (NTSB)	MTB maintains a continuing liaison with NTSB regarding hazardous materials incidents, accident investigation activities, and responses to NTSB safety recommendations.

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HAZARDOUS MATERIALS SAFETY PERFORMANCE PROGRAM

The Department's Hazardous Materials Regulations prescribe specification packaging and transportation practices to provide for safe transportation of hazardous materials. However, just as transportation accidents occur in spite of publication and enforcement of safety regulations, incidents involving unintentional release of hazardous materials occur and sometimes cause fatalities and injuries.

The MTB's centralized reporting system is the Department of Transportation's primary source of hazardous materials incident data. For reporting purposes, an incident is defined as any unintentional release of hazardous materials, ranging from a spill of a small quantity of paint, battery acid, or other less hazardous material to major vehicular accidents involving hazardous materials releases resulting in fire or explosion. For the first time since the reporting system was initiated in 1971, there was a decrease in the number of reported incidents received in 1979. Table 9 contains a summary of reports submitted to the MTB in 1979 which detail fatalities, injuries, and investigations as compared to 1978. Table 10 presents the reporting experience from 1971 to 1979.

While there has been a progressive increase in hazardous materials accidents and reported incidents over the years, reported deaths and injuries have been relatively stable in recent years. There was, unfortunately, a sharp increase in deaths and injuries during 1978 as a result of two major accidents involving rail tank cars carrying liquefied gases. Because of the accidents, the FRA issued an emergency order in 1979 imposing a 30 mph speed limit on trains carrying hazardous materials on the Louisville and Nashville Railroad. It was estimated that over a 30 month period, the railroad has had 121 accidents involving hazardous materials, with 19 deaths, 71 serious injuries, and the evacuation of over 7,200 people in seven states. Fortunately in 1979, there were no reported rail related hazardous materials fatalities.

The Department plans to improve hazardous materials incident reporting through the development of the Hazardous Materials Information System, a multimodal system which will provide a more reliable indicator of regulation effectiveness and compliance levels.

Table 9

Incident Reports and Investigations

	Incidents Reported		Reporting Carriers		Fatalities		Injuries		Investigations	
	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979
Air Carriers	231	284	27	31	0	0	43	13	150	142
Hwy Carriers (for Hire)	15,983	15,355	452	430	14	12	536	608	398	121
Hwy Carriers (Private)	565	623	158	163	6	6	58	89	0	0
Rail Carriers	1,191	1,215	52	50	26	0	482	228	407	398
Water Carriers	47	34	14	15	0	0	10	1	0	0
Freight Forwarder	5	2	2	0	0	0	1	0	0	0
Other	0	11	0	4	0	0	0	2	0	0
Total	**18,022**	**17,524**	**705**	**693**	**46**	**18**	**1,130**	**941**	**955**	**661**

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Table 10

Injuries, Deaths, and Damages Involving Hazardous Materials for Calendar Years 1971-79

Injuries

Mode	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total
Air	0	0	6	5	4	4	9	43	13	**84**
Highway (for hire)	122	192	297	243	395	568	447	536	608	**3,408**
Highway (private)	60	49	38	92	49	49	60	58	89	**533**
Railway	21	53	152	596	96	198	233	482	228	**2,059**
Water	48	0	3	17	2	1	0	10	1	**82**
Freight Forwarder	0	0	0	4	15	0	0	1	0	**20**
Other	2	0	13	0	51	0	0	0	2	**68**
Totals	**253**	**294**	**509**	**903**	**655**	**820**	**749**	**1,130**	**941**	**6,254**

Deaths

Mode	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total
Air	0	0	0	4	0	0	0	0	0	**4**
Highway (for hire)	18	6	11	14	7	12	14	14	12	**108**
Highway (private)	5	6	7	4	20	4	17	6	6	**75**
Railway	0	0	3	10	0	2	1	26	0	**42**
Water	0	0	0	0	0	0	0	0	0	**0**
Freight Forwarder	0	0	0	0	0	0	0	0	0	**0**
Other	0	0	0	0	0	0	0	0	0	**0**
Totals	**23**	**12**	**21**	**32**	**27**	**18**	**32**	**46**	**18**	**229**

Damages

Mode	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total
Air	0	2,853	5,104	4,511,708	9,159	20,512	28,686	6,834	30,312	**4,615,168**
Highway (for hire)	3,118,508	3,587,379	2,604,163	3,849,176	3,028,405	3,617,548	4,272,106	7,440,533	5,372,736	**36,890,554**
Highway (private)	1,661,475	2,701,366	1,713,815	924,980	2,574,211	2,057,017	4,356,545	3,819,373	3,552,533	**23,361,315**
Railway	1,491,745	1,549,358	3,021,685	11,965,143	1,481,995	2,294,633	7,815,243	6,848,364	5,781,500	**42,249,666**
Water	201,052	1,252,095	8,009	20,117	6,331	5,270	18,258	17,912	30,364	**1,559,408**
Freight Forwarder	0	0	0	0	3,345	405	351	160	0	**4,261**
Other	136,005	223,925	14,439	13,035	182	3,788	9,700	0	5,100	**406,174**
Totals	**$6,608,785**	**$9,316,978**	**$7,367,215**	**$21,284,159**	**$7,103,628**	**$7,999,173**	**$16,500,889**	**$18,133,176**	**$14,772,545**	**$109,086,546**

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OUTSTANDING PROBLEMS

In response to a number of outstanding problems confronting the Department in administering the Hazardous Materials Transportation Act, emphasis will be placed on certain program areas. The DOT must confront the following problems extant at the end of 1979:

- An improved Federal-state structure is needed to increase enforcement of compatible regulations while ensuring States have the opportunity to influence national transportation decisions. Greater Federal-state coordination will also serve to improve community preparedness for dealing with hazardous materials accidents.
- A major focus of our program is in the related areas of training and emergency response. More attention must be devoted to improving the national capability to respond to hazardous materials emergencies. In order to do so, the proper Federal role is to provide appropriate information and training assistance to the state and local officials best able to deal promptly and effectively with the jobs of control and clean up at the emergency scene.
- State and local governments are showing an increasing interest in the movement of hazardous materials through their jurisdictions. Some states and localities have restricted such transportation of hazardous materials and radioactive materials. The DOT is working to establish routing requirements for radioactive materials.

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APPENDIX A

EXEMPTIONS IN EFFECT DURING 1979

Listed below, in numerical sequence, are the 928 exemptions that were in effect sometime during the year 1979. The reason for each issuance is given by a number in the right-hand column which is coded to the reasons shown below:

1. to authorize innovative forms of packaging, shipping conditions, or carrier operations, which may result from new technologies or concepts;
2. to authorize packagings of similar nature and integrity equivalent to DOT specification containers;
3. to permit one or a limited number of shipments of a commodity for which an amendment of the regulations would be impractical;
4. to permit emergency movement of a commodity in order to prevent risk to life or property; and
5. to permit emergency movement of a commodity in order to prevent serious economic loss.

Number	*Purpose*	*Reason*
868	To transport explosives of a classified nature without inspection by the carrier.	2
930	To ship diborane and diborane mixed with inert gases in DOT Specification 3AA1800, 3AA2015 and 3AA2400 cylinders.	1
970	To ship diborane in DOT Specifications 3AA2015 and 3AA2400 cylinders with specified conditions.	1
1479	To ship liquefied fluorine and mixtures of fluorine and liquefied oxygen in specially designed cargo tanks.	1
1862	To ship hydraulic accumulators precharged with nitrogen to a pressure not exceeding 3,000 psi.	1
2000	To ship liquefied methane, liquefied natural gas, and liquefied hydrogen in DOT 4L200, Linde LS160B, DOT Specification 4L, and LSH1000 containers.	2
2051	To ship monochlorodifluoromethane and other nonflammable gases in a non-specification cylinder.	2
2136	To ship radioactive materials with explosives in specially designed metal containers when shipped by the Department of Defense with military escort and other requirements.	2
2326	To ship certain Class A explosives in a box not presently authorized.	1
2462	To ship colloidal lead azide in 32-ounce glass bottles overpacked in a wooden box subject to specific requirements.	2
2582	To ship nitrosyl chloride in a cylinder not presently authorized.	1
2587	To ship liquid oxygen in non-specification cargo tanks.	2
2675	To ship a nonflammable compressed gas in DOT Specification 39 nonrefillable cylinders with certain exceptions.	2
2708	To ship liquefied hydrogen consisting of at least 95% parahydrogen in specially designed cargo tanks.	1
2709	To ship desensitized liquid nitroglycerin meeting the provisions of 49 CFR 173.53(e) in non-specification containers with specific requirements.	1
2732	To ship certain Class A explosives in non-specification plywood boxes.	2

Number	Purpose	Reason
2787	To ship nitrogen for the Department of Defense in non-specification pressure vessels for use in the HAWK missle program.	2
2805	To ship liquefied ethylene in specially designed and insulated non-specification cargo tanks.	2
2913	To ship certain flammable and nonflammable compressed gases in non-specification cylinders.	2
2973	To ship isopropyl chloroform in a DOT Specification 37M/2S or 2SL overpack and DOT Specification MC-302 or MC-303 cargo tanks.	1
2981	To ship certain Class A and Class B explosives in slurry form overpacked in fiberboard tubes.	1
2998	To ship Class A explosives in slurry form in an inside plastic container overpacked in a DOT Specifica.ion 12H fiberboard box with additional requirements.	2
3004	To ship argon, nitrogen, oxygen or hydrogen in a non-specification cyliner.	2
3051	To ship oxygen and nitrogen in a non-specification stainless steel cylinder.	2
3095	To ship hydrochloric acid, acid mixtures, and certain flammable liquids in a non-specification cargo tank.	2
3109	To ship hydraulic accumulators charged with helium subject to specified requirements.	3
3121	To ship nitrogen tetroxide in a cargo tank not presently authorized.	2
3126	To ship densitized nitroglycerin in DOT Specification 5 and 42B drums and non-specification containers subject to stringent requirements.	2
3218	To ship a cool gas generator consisting of a welded cylinder containing carbon dioxide with special requirements for the cylinder.	2
3134	To ship liquid caustic soda in DOT Specification 103W or 111A110W1 tank cars having an insulated jacket constructed of reinforced polyester resin, in lieu of metal.	2
3142	To ship helium, argon, or neon in DOT Specification 3A1800 or 3A2000 cylinders forming an integral part of leak calibration apparatus.	3
3187	To ship certain flammable liquids and organic peroxides in non-specification containers subject to certain additional requirements.	2
3188	To ship certain flammable liquids in non-specification portable tanks.	2
3193	To ship liquefied flammable and nonflammable dispersant and refrigerant compressed gas mixtures in certain DOT specification tank car tanks, cargo tanks, and portable tanks.	3
3216	To ship certain compressed gases in proposed DOT Specification 110A3000W tank car tanks.	1
3293	To ship sodium acetylide in xylene in DOT Specification 6A, 6B, 6C, or 17C steel drums.	2
3302	To ship argon, oxygen, helium or nitrogen in a non-specification cylinder.	2
3330	To ship zirconium metal, dry, overpacked in DOT Specification 17C, 17H, or 37A metal drums with certain limitations.	2
3353	To ship ammonium perchlorate, potassium chlorate and sodium chlorate in non-specification steel or aluminum portable tanks.	2
3367	To ship liquefied hydrogen in a non-specification vacuum insultated cargo tank.	2
3415	To ship Poseidon, Trident C-4, and Polaris rocket motors by the Department of Defense on flatbed highway vehicles with additional restrictions.	3
3549	To ship certain high explosives in inside containers and overpacked in a DOT Specification 15A200 wooden box.	2
3563	To ship compressed air containing not more that a Type A quantity of radioactive material in special containers with detailed specifications.	2

Number	Purpose	Reason
3569	To ship bromine trifluoride in a non-specification nonrefillable cylinder having a maximum water capacity of 30 cubic inches.	2
3600	To ship Lance Rocket Engines without liquid propellants by the Department of Defense with additional requirements.	3
3606	To ship a nonflammable compressed gas mixture of carbon dioxide and alcohol in a non-specification container described as a "Cool Gas Generator."	2
3630	To ship nitric acid in DOT Specification 33A polystyrene cases with inside glass bottles not over 5-pint capacity each.	2
3667	To ship de-ethanized natural gasoline in non-specification cargo tanks.	2
3737	To ship Classes A and B explosive in a manner not presently authorized for the Department of Defense.	2
3768	To ship certain chloroformates in an insulated DOT Specification MC-304 or MC-307 cargo tank complying with 49 CFR 178.342-5 or MC-312 cargo tank.	2
3822	To ship bromine in DOT Specification MC-310 or MC-312 except that the total quantity loaded must not be less than 92 percent of the quantity the tank is authorized to carry.	1
3941	To ship ammonium perchlorate in non-specification aluminum portable tanks.	1
3992	To ship hydrogen chloride, anhydrous, in DOT-Specification 105A600W tank car tanks with additional requirements.	2
4007	To ship specified flammable liquids in non-specification portable tanks with additional requirements.	2
4039	To ship liquefied hydrogen in a non-specification portable tank.	2
4052	To ship various nonflammable compressed gases in a DOT Specification 39 nonrefillable cylinder with exceptions.	2
4108	To ship argon, nitrogen, or oxygen in non-specification cargo tanks with specified construction requirements.	2
4177	To ship hydraulic accumulators precharged with nitrogen to a pressure of not more than 2,000 pounds per square inch.	3
4242	To ship mixtures of 80% trimethyl aluminum and 20% triethyl aluminum in specially designed aluminum pressure vessels.	2
4262	To ship charged oil well jet perforating guns with initiators installed in a specially constructed vehicle under certain conditions.	2
4282	To ship certain oxidizing materials or Class B explosives in cargo tanks not presently authorized.	2
4291	To ship ammonium perchlorate in non-specification aluminum portable tanks.	2
4338	To ship certain corrosive liquids in DOT Specification 3AA2015 cylinders and DOT Specification 51 portable tanks.	2
4354	To ship certain chloroformates under conditions not presently authorized.	2
4390	To ship certain corrosive liquids, flammable liquids, oxidizers, and poisonous Class B liquids in a non-specification 6½ gallon glass carboy overpacked in expanded polystyrene packaging.	1
4399	To ship liquefied methane in a non-specification cargo tank.	2
4400	To ship certain nonflammable and flammable compressed gases in non-specification cargo tanks.	2

Number	Purpose	Reason
4404	To ship liquefied ethylene in a non-specification cargo tank.	2
4453	To ship nitro carbo nitrate in non-specifiction bulk hopper-type aluminum tanks with certain additional requirements.	2
4459	To manufacture, mark, and sell a non-specification steel, copper-brazed sphere for the shipment of certain hazardous materials.	2
4460	To ship metallic sodium in DOT Specification 51 steel portable tanks with additional requirements.	2
4490	To ship liquefied hydrogen in a non-specification cargo tank.	2
4497	To ship liquefied oxygen in non-specification cargo tanks.	2
4547	To ship hydraulic accumulators precharged with helium and meeting specified construction requirements.	2
4554	To ship liquefied ethylene in a non-specification cargo tank.	2
4575	To ship the nonflammable, nonpoisonous refrigerant and dispersant mixtures listed in 49 CFR 173.314(c) and 173.315(a)(1) and certain others in certain DOT specification tank car tanks and cargo tanks.	2
4588	To ship certain high explosives in a metal container not presently authorized.	2
4600	To ship anhydrous hydrogen bromide in DOT Specification 51 portable tanks with additional requirements.	2
4607	To ship certain nonflammable, nonpoisonous compressed gases in inside plastic coated glass bottles.	2
4612	To ship various flammable liquids, flammable solids, poisonous liquids, corrosive liquids, corrosive solids, oxidizing materials, and irritating agents in inside glass bottles overpacked in metal cans and further overpacked in a DOT Specification 12B fiberboard box.	2
4631	To ship nitro carbo nitrate and anhydrous ammonia in specially designed hopper-type tank trucks and cargo tanks.	1
4661	To ship butyl lithium in DOT Specification 4BA240 cylinders which may be retested with hexane or nitrogen at one and one-half times the highest charging pressure, in lieu of the visual internal and hydrostatic testing.	2
4684	To ship valve actuators (or components thereof) which contain liquid sodium and potassium in containers not presently authorized under 49 CFR 173.202 and 173.206.	1
4698	To ship hydraulic accumulators precharged with nitrogen to a pressure not exceeding 1,500 psi and overpacked in Specification PPP-B-640 fiberboard boxes.	2
4717	To ship liquefied ethane or liquefied ehtylene in DOT proposed Specification 113D120W tank car tanks.	2
4719	To ship certain flammable and nonflammable gas mixtures in DOT Specifications MC-330 and MC-331 cargo tanks and DOT Specifications 105A300W, 112A340W, 114A340W, 106A500, 106A500X, and 110A500W tank car tanks.	2
4726	To ship certain corrosive liquids in a non-specification monel cylinder.	2
4734	To ship certain corrosive liquids and flammable liquids in DOT Specification MC-331 cargo tanks, except for piping, valves, and liquid level gauging device.	2
4760	To ship helium shielded by liquefied nitrogen in an insulated non-specification cargo tank.	2

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Number	Purpose	Reason
4790	To ship a tear gas device meeting DOT Specification 2P and overpacked in a DOT Specification 12B fiberboard box.	2
4803	To ship sodium hydroxide up to 50% solution in water, sulfuric acid up to 45%, and formic acid u p to 90% in privately owned and operated specially designed cargo tanks.	1
4844	For shipment of British-made steel cylinders charged with air, nitrogen, oxygen, carbon dioxide, or nonpoisonous nonflammable, halogenated hydrocarbon gases.	2
4845	To ship bromochlorodifluoromethane pressurized with nitrogen, in non-specification foreign-made steel cylinders which bear the United Kingdom Air Registration Board Approval.	2
4850	To ship flexible linear shaped charges, metal clad, in 100-foot lengths and not more than 50 grains per lineal foot.	1
4884	To ship nonliquefied compressed gases in steel cylinders complying with DOT Specification 4BW, except for being fabricated from Type 304 stainless steel.	2
4932	To ship tear gas devices in a telescopic-type, cylindrical-wound kraft container fitted with metal ends and further overpacked in a DOT Specification 12B fiberboard box.	2
4990	To ship whiskey and other alcoholic beverages in AAR Specification 206W tank cars.	2
5022	To ship certain Class A and Class B explosives in or on rail cars or highway vehicles equipped with heating or refrigerating apparatus operated by diesel or gasoline fuel.	1
5038	To ship silicon, chloride, dimethyldichlorosilane, or trichlorosilane in non-specification cylinders with additional requirements.	2
5062	To ship anhydrous hydrogen chloride in a modified DOT Specification MC-330 or MC-331 cargo tank.	2
5112	To ship desensitized liquid nitroglycerin in specially designed kettle drum-type aluminum containers.	1
5117	To ship certain Class B poisonous materials in glass vials under specified conditioning.	1
5122	To ship hexafluoroacetone in DOT Specification 106A500X and 110A500W tanks.	2
5136	To ship certain liquefied and nonliquefied flammable and nonflammable compressed gases in DOT Specification 4AA480 cylinders.	2
5179	To ship certain flammable and nonflammable compressed gases in cylinders complying with DOT Specification 3T except the cylinders are not properly marked.	2
5186	To ship liquefied carbon monoxide in non-specification cargo tanks.	1
5188	To ship radioactive materials and nonliquefied compressed gases in a metal drum built to military specifications.	2
5196	To ship liquefied ethylene in a non-specification cargo tank.	2
5200	To ship dipersant and refrigerant gas mixtures in DOT Specifications 105A400W and 114A340W tank cars.	2
5206	To ship nitro carbo nitrate in privately operated bulk hopper-type tanks.	1
5232	To ship refrigerant and dispersant gs mixtures in AAR Specifications 120A300 and DOT Specification 105A500W tank cars converted to AAR Class 120A tank cars.	2
5234	To ship a small gas appliance incorporating a fuel tank containing liquefied petroleum gas.	1
5243	To ship blasting caps as specified in 49 CFR 173.66(g)(1), except each connector may be cushioned in a plastic sheath.	1
5248	To ship radioactive materials in any approved outer Type A packaging as prescribed in 49 CFR 173.389(j) and 173.394(a).	2

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Number	Purpose	Reason
5263	To ship trifluoromethane sulfonic acid in a stainless steel vessel having a capacity of not over 10 gallons.	2
5315	To transport with their own equipment (Department of Defense) certain explosives projectiles and rocket engines.	2
5322	To ship liquefied ethylene and LNG in specially designed and insulated cargo tanks.	1
5365	To ship liquefied ethylene in 10,500-gallon nominal water capacity insulated aluminum cargo tanks.	1
5372	To ship certain flammable and nonflammable compressed gases in cylinders complying with DOT Specification 3T except for marking.	2
5403	To ship certain corrosive materials and solutions thereof in specially designed, owned, and operated cargo tanks.	1
5413	To ship ethylene in 10,500 gallon nominal water capacity insulated aluminum non-specification cargo tanks.	1
5414	To ship ethylene in a 600-gallon specially designed non-specification portable tank.	2
5454	To ship sulfur hexafluoride in DOT Specifications 3A1800, 3AA1800, 3AA3400, and 3T1800 cylinders.	1
5456	To ship certain hazardous materials in a non-specifications glass carboy having a capacity of 6½ gallon, each overpacked in an expanded polystyrene drum.	1
5485	To ship liquefied helium in specially designed cargo tanks.	1
5493	To ship anhydrous hydrogen sulfide in DOT Specification 105A600W tank cars.	2
5520	To ship certain corrosive liquids in DOT Specification 57 portable tanks.	1
5526	To ship certain corrosives, flammable, organic peroxides, oxidizers and poison B liquids in a polystyrene container not previously authorized.	2
5557	To ship high explosive devices in specially designed containers.	1
5559	To ship certain compressed gases in cyliners complying with 49 CFR 173.34(e)(15), except age is over 35 years.	1
5600	To ship hazardous materials in a cylinder complying with DOT Specification 3A, except that it is fabricated from monel metal.	2
5604	To ship liquefied helium shielded by liquid nitrogen in specially designed and insulated portable tanks.	1
5615	To ship certain hazardous materials in a 6½ gallon non-specification glass carboy overpacked in an expandable polystyrene overpack.	2
5634	To ship methanol, acetone, or flammable liquids, n.o.s., in a specially designed 4,800-gallon non-specification portable tank.	1
5643	To ship liquefied helium in a non-specification vacuum insulated portable tank.	1
5649	To ship bromochlorodimethylhydantoin in non-specification fiberboard boxes.	1
5652	To ship anhydrous nitrosyl chloride or acetyl chloride in a non-specification 2,000-gallon capacity nickel clad steel portable tank.	1
5662	To ship methyl bromide and mixtures thereof in DOT Specification 51 portable tanks.	2
5668	To ship certain flammable and combustible liquids in a portable tank complying with DOT Specification MC-307 with certain exceptions.	1

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
5701	To shop nitric acid in cargo tank complying with DOT Specification MC-312 with certain exceptions.	1
5704	To ship certain Class A and Class B liquid explosives under specified conditions.	2
5716	To ship sulfur dioxide in tanks complying with DOT Specification 106A500 with certain exceptions.	2
5717	To ship tear gas material, solid, with explosive detents in a non-specification container.	1
5736	To ship liquefied ethylene in two DOT proposed 113C120W tank cars.	2
5746	To ship expended missiles and missile components which are contaminated with inhibited red fuming nitric acid and unsymmetrical dimethylhydrazine.	1
5749	To ship tetrafluorethylene and hydrogen chloride gas mixture in a modified DOT Specification MC-331 cargo tank.	2
5767	To ship certain corrosive liquids in non-specification steel portable containers of not over 330-gallon capacity having full polyethylene liner.	1
5777	To include primers, igniters or both in shipments of propellant explosives.	1
5778	To ship cetain flammable compressed gases in DOT Specification 39 cylinders.	2
5792	To ship liquefied ethylene in DOT proposed Specification 113D60W tank cars.	2
5820	To ship certain nonflammable compressed gases in foreign-made portable tanks.	2
5825	To ship liquefied ethylene in specially designed and insulated non-specification cargo tanks.	1
5852	To ship liquefied methane or natural gas in specially designed and insulated aluminum cargo tanks.	1
5854	To ship various flammable and combustible liquids in a modified DOT Specification MC-306 cargo tank.	2
5861	To ship bromotrifluoromethane pressurized with nitrogen in a cylinder that meets DOT Specification 4DS with one exception.	2
5867	To ship sulfur trioxide, unstabilized, in a DOT Specification MC-312 cargo tank.	2
5876	To ship a poisonous solid or insecticide, dry, in DOT Specification 44D multi-wall paper bags and non-specification bags of not over 55 pounds net weight.	2
5891	To ship high explosives in DOT Specification 15A wooden boxes not exceeding 500 pounds gross weight.	2
5895	To ship flexible linear shaped charges, metal clad, in a DOT Specification 12H fiberboard box.	1
5912	To ship certain flammable, corrosive, and combustible liquids in non-specification steel portable tanks.	2
5923	To ship certain flammable and nonflammable compressed gases in DOT Specification 106A500X and 110A500W tanks.	1
5944	To ship liquefied ethylene in a modified DOT Specification MC-330 cargo tank.	1
5945	To ship liquefied carbon dioxide in a modified insulated steel portable tank.	1
5948	To ship radioactive material in DOT Specification 17C, 17H, 19A, 19B, or equivalent containers.	2
5951	To ship chlorine and sulfur dioxide in a tank complying with DOT Specification 106A500 with certain exceptions.	2
5959	To ship liquefied ethylene in specially designed non-specification cargo tanks.	1
5967	To ship monochlorodifluoromethane in a pressure vessel complying with DOT Specification 3HT with certain exceptions.	1

BEST DOCUMENT AVAILABLE

Number	*Purpose*	*Reason*
5972	To ship certain flammable and combustible liquids in tanks complying with DOT Specification MC-306 or MC-307 with certain exceptions.	1
6007	To ship radioactive devices containing a certain quantity of polonium-210 under the provisions of 49 CFR 173.391.	2
6016	To ship certain cryogenic gases in non-specification portable tanks.	1
6039	To ship liquefied ethylene in a specially designed non-specification cargo tank.	1
6045	To ship carbon bisulfide or carbon disulfide in DOT Specification MC-312 cargo tanks.	1
6064	To ship a certain high explosive in a DOT Specification 21P fiber drum with an inside non-specification liner.	2
6066	To ship certain flammable and combustible liquids in non-specification portable tanks.	2
6068	To ship nitrogen in a non-specification steel spherical pressure vessel.	2
6070	To ship sulfur trioxide which does not contain an additive in a DOT Specification 105A300W tank car.	1
6071	To ship monobromotrifluoromethane pressurized with nitrogen in a non-specification stainless steel pressure vessel.	2
6080	To ship nitric oxide in DOT Specification 3A2400 or 3A2500 cylinders in manifolded arrangements.	2
6083	To ship sulfur trioxide, unstabilized, in DOT specification cylinders as prescribed for any compressed gas except acetylene.	2
6092	To ship nitric acid and perchloric acid in glass bottles in polystyrene cases overpacked in fiberboard cartons.	2
6111	To ship liquefied hydrogen in non-specification cargo tanks.	1
6113	To ship or transport certain liquefied flammable gases in non-specification cargo tanks.	1
6117	To ship hydrogen sulfide in a DOT Specification 105A600W tank car with certain exceptions.	1
6121	To ship chloroprene in proposed DOT Specification 115A60W1 and 115A60W6 tank cars.	2
6122	To ship dry oxidizing materials in non-specification inner containers overpacked in a DOT Specification 12B fiberboard box.	2
6124	To ship certain Class A, B, or C explosives in a modified DOT Specification 12H fiberboard box.	2
6126	To ship chloroacetyl chloride in DOT Specifications 6D/2S or 6D/2SL containers with certain exceptions.	1
6128	To ship certain flammable liquids, poison B liquids, combustible liquids, oxidizers, and corrosive liquids in non-specification steel portable tanks.	1
6151	To ship certain flammable and nonflammable compressed gases in non-specification aluminum cylinders.	2
6154	To ship certain flammable solids in a fiberboard box complying with DOT Specification 12B with certain exceptions.	2
6170	To ship nitrogen in non-specification nonrefillable steel cylinders.	2
6173	To ship liquefied ethylene in a tank complying with DOT Specification MC-331 with certain exceptions.	1
6184	To ship liquefied helium in a non-specification portable tank.	2
6197	To ship liquefied natural gas or methane in a specially designed and insulated cargo tank.	1
6205	To ship liquefied natural gas, methane, and liquefied ethylene in a non-specification cargo tank.	2
6215	To ship hydrogen chloride in a non-specification cargo tank.	2

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
6218	To ship liquefied argon, and nitrogen in a non-specification cargo tank.	2
6225	To ship bromine in a glass jug inside a DOT Specification 33A polystyrene case further overpacked in a fiberboard box with other additional requirements.	2
6228	To ship acetylene in solution in DOT Specification 8 or 8AL cylinders which are manifolded.	1
6231	To manufacture, mark, and sell a tank car not presently authorized for the shipment of liquefied ethylene.	2
6232	To ship a seat assembly with a survival kit containing strike-anywhere matches, Class C explosives, and other commodities.	2
6234	To ship an oxidizing material in 49 CFR 173.217 packages.	2
6243	To ship liquefied carbon monoxide in a non-specification cargo tank.	2
6250	To ship partially disassembled aircraft with explosive components remaining installed.	1
6253	To ship various flammable liquids, oxidizers, combustibles, corrosives, and poisonous liquids and solids in non-specification portable tanks.	2
6263	To ship compressed air or nitrogen in non-specification cylindrical or spherical steel tanks.	2
6267	To ship certain oxidizing materials in a non-specification outside fiberboard box.	2
6281	To ship sulfur trioxide, unstabilized in DOT Specification MC-311 or MC-312 cargo tanks.	2
6293	To ship spent mixed acid in DOT Specification MC-311 or MC-312 cargo tanks.	2
6296	To ship dry organic compound mixtures containing not more than 15% active ingredient in DOT Specification 44D multi-wall bags with a maximum net weight of 50 pounds.	2
6299	To manufacture, mark and sell a non-specification portable tank for the shipment of oxygen, nitrogen, and argon.	2
6305	To ship detonating fuzes, Class C explosive, in DOT Specification 23F fiberboard boxes.	2
6309	To ship certain nonpoisonous, nonflammable compressed gases in a non-specification steel portable tank.	2
6325	To ship certain oxidizing materials in a non-specification cargo tank and DOT Specification MC-306, MC-307, and MC-312 cargo tanks.	2
6333	To ship certain corrosive liquids in a DOT Specification MC-312 cargo tank with exceptions.	2
6334	To ship nitric acid and nitrogen dioxide mixture in DOT Specification MC-312, MC-330, or MC-331 cargo tanks.	2
6348	To ship certain oxidizing materials (solid) in non-specification polythylene containers not exceeding 6-gallon capacity.	2
6349	To ship liquefied helium and liquefied hydrogen in insulated non-specification portable tanks.	1
6369	To ship aniline oil and certain other Class B poisonous liquids in DOT 105A400W, 112A400W, 114A400W, 120A300W tank cars and proposed DOT 120A400W tank cars.	2
6392	To ship liquefied ethylene in tank cars having tanks complying with AAR Specifications 113C120W.	1
6397	To ship a liquid herbicide, Class B poison, in DOT Specification 34 polyethylene container not over 6½ gallon capacity.	2
6398	To ship certain flammable liquids in non-specification portable tanks of approximately 5,250-gallon capacity.	2
6403	To ship liquefied ethylene in non-specification aluminum cargo tanks insulated with foamed-in-place polyurethane covered with an outer stainless steel jacket.	1

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
6416	To ship monochlorodifluoromethane in DOT Specification 105A300W tank cars having tanks equipped with safety relief valves having start-to-discharge setting of 247.5 psig.	2
6418	To ship certain chloropicrin mixtures in DOT Specification MC-303, MC-304, MC-306, or MC-307 steel cargo tanks.	1
6432	To ship pressurized liquid nitrogen, oxygen, or argon in non-specification cryogenic cargo tanks made of aluminum and an outer carbon steel jacket.	1
6434	To ship organic phosphate compound mixtures, dry, containing not more than 16% by weight active ingredients in non-specification 5-ply paper bags of extensible kraft construction.	2
6442	To ship explosive projectiles containing a corrosive or flammable liquid.	2
6443	To ship hydrogen sulfide in a DOT Specification MC-331 cargo tank under specified operating conditions.	1
6452	To ship organic peroxide, solid, n.o.s., in DOT Specification 12B65 fiberboard boxes with inside paper bags lined with 0.002-inch thick polyethylene, not over 1-pound capacity each.	2
6453	To ship an inflator assembly in non-specification cylinders complying with DOT Specification 39 cylinders with certain exceptions.	1
6464	To ship liquefied natural gas and liquefied ethylene in non-specification aluminum cargo tanks having a capacity of 11,900 gallons.	1
6466	To ship primadet delays described as "Detonating primers" in DOT Specification 12H fiberboard boxes.	2
6468	To ship dinitrochlorobenzene, maintained at a temperature above 113°F., in insulated DOT Specification MC-304 stainless steel cargo tanks with heating coils.	2
6472	To ship certain flares as "Special fireworks" in flame retardant, high pile, polystyrene foam containers, palletized.	2
6477	To ship blasting caps—more than 1,000 in polystyrene blocks (having cut-through cavities), in which 110 blasting caps are placed vertically in prescribed outside wooden or fiberboard boxes.	2
6484	To ship certain nitromethane mixtures in DOT Specification MC-307 or MC-312 tank motor vehicles.	2
6497	To ship Furadan wettable powder in steel portable tanks complying with DOT Specification 56, except a toggle-type clamp ring is authorized.	2
6498	To manufacture, mark and sell a non-specification seamless cylinders made of aluminum alloy, designated 6451-T6.	1
6500	To ship whiskey in non-specification stainless steel portable tanks having a nominal water capacity of 5,040 gallons.	2
6501	To ship a liquid high explosive in 55-gallon, DOT Specification 6D steel overpack with a Specification 2SL liner.	2
6517	To ship acetylene in non-specification steel cylinders complying with certain features of DOT Specification 4BW.	2
6518	To ship pyroforic materials in foreign-made portable tanks built in compliance with DOT Specification 51, except for ASME approval.	2
6523	To ship certain oxidizers, sodium carbonate peroxide and sodium persulfate in tight, sift-proof, covered hopper cars, hopper-type motor vehicles, 44B, 44C paper bags and 44P plastic bags.	2
6526	To ship methyl bromide, liquid, chloropicrin liquid, or permitted mixtures thereof, in DOT Specification 4BW or 4BA steel cylinders with different type valve protections.	2

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
6530	To ship hydrogen or hydrogen mixed with helium, argon or nitrogen in DOT Specification 3A, 3AA, 3AX, or 3AAX cylinders charged to a pressure 10% in excess of their marked service pressure.	2
6531	To ship nitrogen or air in non-specification nonrefillable steel inside cylinders.	2
6536	To ship liquefied natural gas, ethylene, or pressurized liquid nitrogen in non-specification aluminum cargo tanks, polyurethane foam insulated.	1
6538	To ship butane in inside metal containers complying with DOT Specification 2P except for excessive inside diameter.	2
6543	To ship dimethyldichlorosilane, trichlorosilane, Dichlorosilane, and silicon tetrachloride in non-specification 16-gauge, 304 stainless steel cylinders.	2
6545	To ship methane or natural gas in a non-specification cargo tank having a 3,000-gallon water capacity.	2
6554	To ship certain solid oxidizing materials in single-trip, open-head, molded polyethylene containers without overpack, not exceeding 6½ gallon capacity.	1
6556	To ship cement, rubber, in a non-specification portable tank having a capacity of 6,040 gallons and comparable to DOT Specification MC-307 cargo tank.	2
6557	To ship carbon dioxide and bromotrifluoromethane in DOT Specification 3A, 3AA, or 4BA cylinders for which certain inspection report requirements have been waived.	1
6563	To ship certain nonliquefied, nonflammable compressed gases in non-specification steel cylinders complying with DOT Specification 3E with certain exceptions.	2
6564	To ship certain flammable liquids in a non-specification compartmented portable tank.	2
6569	To ship alcohol, n.o.s., in non-specification steel portable tanks similar to DOT Specification MC-306 cargo tanks.	2
6571	To ship liquefied natural gas, ethylene, or ethane in non-specification aluminum cargo tanks.	1
6583	To ship an alkaline corrosive liquid in DOT Specification 51 portable tanks with bottom outlet.	1
6589	To ship compressed air in a pressure vessel assembly consisting of stainless steel tubing in a double coil configuration.	1
6598	To ship vinyl benzyl chloride in DOT Specification 6D cylindrical steel overpack having a sulfonated, high-density polyethylene container.	2
6602	To ship bromine chloride and mixtures thereof in DOT Specification MC-331 cargo tanks, 105A500W tank cars or 106A500X tanks.	1
6606	To ship diethyl chlorophosphate in DOT Specification 17C steel drums with inside DOT Specification 2SL polyethylene container.	1
6607	To ship trichloro-s-triazinetrione, dry, compressed into the shape of a cylinder, in two identical interlocking molded polystyrene half packs.	1
6608	To ship propane in framed, steel portable tanks complying with DOT Specification MC-331.	2
6610	To ship tertiary butyl hydroperoxde (TBHP), 30% water, in DOT Specification 111A100W6 tank cars and DOT Specification MC-307 cargo tanks.	1
6611	To ship liquefied helium in insulated 5,000-gallon stainless steel non-specification portable tanks.	1
6614	To ship hydrochloric acid (32% strength) or hypochlorite solutions in one-gallon polyethylene bottles inside high-density polyethylene boxes.	1
6616	To ship certain hazardous and nonhazardous materials pressurized with nitrogen in non-specification spherical steel pressure vessels manufactured in compliance with DOT Specification 4BA with certain exceptions.	2

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
6618	To ship para-nitro-chlorobenzene in an insulated DOT Specification MC-312 tank motor vehicle with heating coils.	2
6626	To ship certain compressed gases in accordance with 49 CFR 173.34(e)(15)(ii), except that the cylinders may be over 35 years old.	1
6629	To ship monoammonium phosphate pressurized with air or bromotrifluoromethane pressurized with nitrogen in non-specification spherical steel pressure vessels manufactured in compliance with DOT Specification 4B with certain exceptions.	2
6632	To ship certain dry oxidizing materials in granular and compressed forms, in 3½ gallon, 6-gallon and 7-gallon capacity single-trip, molded polyethylene containers.	1
6637	To manufacture, mark and sell, a non-specification reusable polyethylene container for the shipment of certain corrosive liquids, flammable liquids, Class B poisons, liquid organic peroxides and hydrogen peroxide solution.	1
6651	To reship one-time DOT Specification 37A metal drums, containing sodium cyanide mixtures, dry, qualified for reuse in accordance with 49 CFR 173.28(m) with exceptions.	2
6652	To manufacture, mark and sell non-specification filament-wound fiberglass reinforced plastic cylinders, not over 1,000-cubic inch capacity for the shipment of certain compressed gases.	1
6653	To ship certain Class B poison liquids or corrosive material in DOT Specification 6D removable-head 55-gallon drum having inside eight 5-gallon quadrant-shaped, high-density polyethylene containers.	1
6657	To ship certain nonliquefied compressed gases as prescribed in 49 CFR 173.34(e)(15), except cylinders are older than 35 years.	1
6658	To ship a high explosive (Pentaerythrite tetranitrate and sylgard) in refrigerated open-head steel drums.	4
6668	To ship oxygen, pressurized liquid, in a DOT Specification 4L cylinder except insulation is covered with an aluminum jacket.	1
6670	To ship tetrafluoromethane in manifolded DOT Specification 3A, 3AA, 3AX, and 3AAX cylinders.	1
6672	To manufacture, mark and sell a steel cylinder complying with DOT Specification 39 with certain exceptions for the shipment of certain nonliquefied compressed gases.	2
6675	To ship pressurized liquid synthetic plastic in twin DOT Specification MC-331 cargo tanks mounted in tandem.	1
6686	To ship methyl acetylenepropadiene, stablilized, in DOT Specification 39 cylinders having brazed seams.	1
6688	To manufacture, mark and sell a non-specification seamless cylinder made of aluminum alloy and designated as 6351-T6 for the shipment of certain compressed gases.	2
6691	To ship compressed gases as prescribed in 49 CFR 173.34(e)(15)(i), except cylinders may be older than 35 years.	1
6694	To ship dichlorodifluoromethane in a non-specification portable tank.	2
6695	To ship monochlorodifluoromethane in a non-specification portable tank.	2
6699	To ship liquid caustic soda in DOT Specification 111A100W1 tank car tanks having insulation covered with an elastomeric coating instead of a metal jacket.	1
6700	To ship corrosive liquids for which the DOT Specification 34 container is prescribed, thionyl chloride and hydrogen peroxide solution in non-specification reusable molded, laminated polyethylene containers of 55-gallon capacity.	1

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
6702	To ship chemical kits containing sulfuric acid sodium hydroxide solution, or liquids, n.o.s. packed with non-hazardous articles.	2
6704	To ship certain corrosive liquids in cargo tanks complying with DOT Specification MC-312 with certain exceptions.	2
6712	To ship compressed gases as prescribed in 49 CFR 173.34(e)(15), except cylinders may be older than 35 years.	2
6720	To ship certain oxidizing materials, flammable and combustible liquids in non-specification portable tanks patterned after DOT Specification MC-307.	2
6724	To ship 25MM caseless ammunition, with solid projectile, as explosive, Class C.	1
6726	To ship certain corrosive liquids and hydrogen peroxide solution in non-specification reusable, polyethylene containers of 55-gallon capacity.	1
6731	To ship chemical kits containing minute quantities of various hazardous materials overpacked in a strong metal container.	1
6735	To ship bromine in non-specification cylinders constructed in accordance with DOT Specification 4B, 4BA, or 4BW.	1
6738	To ship liquefied ethylene in a non-specification cargo tank.	1
6743	To ship a nitro carbo nitrate slurry in a DOT Specification 56 portable tank.	1
6746	To ship anhydrous ammonia in portable tanks built, marked, and maintained in compliance with DOT Specification MC-331.	1
6751	To ship hydrochloric acid or caustic soda, liquid, in non-specification fiberglass reinforced plastic (FRP) cargo tanks not exceeding 5,000-gallon water capacity.	1
6752	To ship difluoroethylene (vinylidene fluoride) in DOT Specification 3A2400 cylinders.	1
6754	To ship a compressed inert gas mixture in nonrefillable welded, steel pressure vessels (toroidal shaped).	1
6755	To ship pressurized liquid argon, nitrogen, or oxygen in a non-specification truck-mountable cargo tank fabricated from Type 304 stainless steel.	1
6757	To ship hydrogen peroxide solution in water containing not over 60% hydrogen peroxide by weight in a non-specification insulated aluminum portable tank.	2
6758	To ship corrosive liquids in a non-specification 5-gallon removable head polyethylene container without overpack.	1
6759	To ship electric blasting caps and various Class A or B explosives under conditions other than prescribed in 49 CFR 177.835(g)(2).	1
6760	To transport parathion, methyl parathion, land other liquid organic phosphate compounds in a DOT Specification 51 portable tank.	1
6762	To ship titration kits containing corrosive and flammable liquids packed with nonhazardous articles.	1
6763	To ship oxidizing materials, dry, containing more than 39% available chlorine in non-specification corrugated fiberboard boxes having inside polyethylene containers.	2
6765	To ship liquefied helium and liquefied hydrogen in an insulated, containerized portable tank.	1
6766	To ship compounds, cleaning liquid, in DOT Specification MC-311 and MC-312 cargo tanks.	2
6768	To ship carbon monoxide in 6,500-gallon non-specification insulated cargo tanks.	1
6769	To ship trifluoromethane in insulated DOT Specification MC-331 cargo tanks and DOT Specification 105A600W tank cars.	2
6772	To ship certain corrosive liquids, flammable liquids, and poisonous liquids in inside glass or plastic bottles not exceeding 1-gallon capacity overpacked in a DOT Specification 17H steel drum.	1

Number	*Purpose*	*Reason*
6773	To ship vinylidene fluoride in DOT Specification 105A600W tank cars.	1
6774	To ship helium in non-specification cylinders complying with DOT Specification 3HT with certain exceptions.	2
6787	To manufacture, mark and sell a non-specification reusable polyethylene container for the shipment of certain Class B poisonous liquids, flammable liquids, organic peroxides and corrosive liquids.	1
6790	To ship hydrochloric acid or caustic soda, liquid, in non-specification fiberglass-reinforced plastic cargo tanks.	1
6793	To ship certain poisonous, flammable, corrosive, and combustible liquids in non-specification portable tanks.	2
6794	To ship certain liquids in the organic phosphate family in a non-specification tank motor vehicle (twin tanks) constructed in accordance with ASME Code.	1
6798	To ship chromic acid, solid in steel portable tanks complying with DOT Specification 56 with certain exceptions.	1
6800	To manufacture, mark and sell non-specification reusable, molded polyethylene containers of 55-gallon capacity.	1
6801	To ship certain flammable liquids in a one-gallon glass bottle in a DOT Specification 12B-65 fiberboard box.	1
6802	To ship pressurized liquid argon, nitrogen, or oxygen in a non-specification truck-mountable, cargo tank.	1
6805	To ship certain gas mixtures in DOT Specification 3AAX steel cylinders.	1
6806	To ship hydrogen gas in a DOT Specification 3E-1800 cylinder which is a component part of a "Portable Gas Chromatrograph" device.	1
6810	To ship helium in seamless tanks (tubes) made, marked, and maintained in compliance with DOT Specification 107A, except they are not mounted on a rail car.	1
6811	To ship nonflammable compressed gases in nonrefillable, welded steel cylinders built in compliance with DOT Specification 39 with certain exceptions.	2
6815	To ship certain organic phosphate compound mixtures, liquid, in a DOT Specification MC-312 tank motor vehicle.	1
6816	To ship completely assembled liquid and soldid fueled missiles as Rocket ammunition with explosive projectile.	1
6820	To ship a certain oxidizer in inside 2-pound, 5-pound, 10-pound, and 20-pound cartons overpacked in DOT Specification 12A and 12B fiberboard boxes.	2
6824	To ship calcium hypochlorite mixtures and other dry oxidizing materials in polyethylene bottles having not over 12½ pounds of product overpacked in fiberboard boxes.	2
6825	To ship liquefied ehtylene in a DOT proposed Specification 113C120W tank car meeting AAR specifications.	1
6826	To ship miniature rocket motors, Class B explosives, with igniters assembled therein.	1
6828	To ship certain corrosive materials under 49 CFR 173.244(a) exemptions when packaged inside glass bottles having volumetric capacity not over 16 ounces overpacked in strong outside fiberboard boxes.	1
6834	To ship phosphoric acid in DOT Specification 5 drums.	2

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
6844	To ship coal tar dye, liquid, in a non-specification 275 gallon "Dypack" single-trip polyethylene container overpacked in a strong plywood box.	1
6847	To ship toluene diisocyanate and methyl-bis-4-cyclohexyl isocyanate as Class B poisonous liquids in non-specification steel portable tanks.	2
6858	To ship certain corrosive liquids, Class B poisons, flammable liquids, and combustible liquids in non-specification steel portable tanks.	2
6859	To ship nitrogen in a non-specification, nonrefillable steel spherical pressure vessel having a 9.4-cubic inch capacity.	2
6861	To ship a slurry high explosive in a 20-gallon capacity DOT Specification 21P fiber drum with an all-steel top head and having a DOT Specification 2SL or 2U liner.	2
6864	To ship rum and certain other flammable liquids in non-specification stainless steel portable tanks.	2
6870	To ship certain radioactive materials packages having separation distances that deviate from 49 CFR 177.842(b).	1
6874	To ship sodium cyanide, solid, or potassium cyanide, solid, in strong non-specification plywood boxes.	1
6883	To ship certain corrosive liquids, flammable liquids, oxidizers and organic peroxides in reusable, 55-gallon capacity, non-specification polyethylene drums.	1
6889	To ship anhydrous ammonia in nonrefillable steel pipe, welded closed at both ends, and not exceeding 85 feet in length.	1
6890	To ship certain Class C explosives as flexible linear shaped charges, metal clad.	2
6894	To ship nonliquefied, nonflammable compressed gases in an ASME pressure vessel assembly consisting of a steel cylinder having welded tubular extensions.	1
6895	To ship zirconium liquid mixture in 5-gallon DOT Specification 37A steel drums (single-trip) with inside 8-ounce French square glass bottles.	1
6896	To ship certain Class B poisonous liquids (organic phosphate compounds and mixtures thereof) in non-specification cargo tanks built to the ASME Code.	1
6898	To ship acid and corrosive liquids in a DOT Specification 33A polystyrene case having a closure secured by polypropylene strapping or equivalent.	2
6901	To ship Class B poisonous solid waste in DOT Specification 17E drums authorized for reuse.	1
6902	To ship anhydrous hydrogen bromide in modified DOT Specification 110A800W tanks.	1
6904	To ship antimony pentafluoride (spectrograde) in DOT Specification 12A fiberboard boxes having inside glass bottles not exceeding 1-pint capacity, each individually packed and surrounded with vermiculite in a metal can.	1
6908	To ship helium, nitrogen, argon, compressed air, and compressed gases, n.o.s., in a non-specification steel pressure vessel constructed in compliance with DOT Specification 39 with certain exceptions.	2
6913	To ship vinyl chloride in a non-specification 1,900-gallon water capacity cargo tank having a design pressure of 250 psi.	2
6919	To ship certain cryogenic liquids in a 10,848-gallon capacity cargo tank having a stainless steel inner tank, insulated with perlite and evacuated, and an outer steel jacket.	1
6921	To ship liquefied helium in an insulated containerized portable tank having a design pressure of 65 psig and a nominal water capacity of 10,800 gallons.	1
6922	To ship trifluoropropylene in DOT Specification 106A500X tanks.	1

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
6923	To ship liquefied ethylene in a 10,800-gallon capacity cargo tank having an aluminum inner tank, insulated with polyurethane covering, and an outer steel jacket.	1
6925	To ship certain corrosive liquids in high density polyethylene bottles overpacked in an outside nonreusable, non-specification 200-pound test double-faced fiberboard box.	1
6926	To ship a Class B poisonous solid in a five-ply DOT Specification 44D bag having a minimum total basis weight of 260 pounds.	2
6927	To ship methyl bromide, liquid, and methyl bromide and chloropicrin mixture, liquid, in a non-specification portable tank having a design pressure of 175 psig and a capacity of 3,567 gallons.	1
6929	To ship semi-propulsive rocket motors, Class B explosives in packaging approved by the Bureau of Explosives.	1
6931	To ship an ammonia solution in insulated aluminum tank cars built to AAR-201A80W and DOT Specification 105A100W or 105A300W. Bottom outlets are prohibited.	2
6932	To ship anhydrous hydrofluoric acid in a non-specification portale tank.	1
6939	To ship an ethane-propane mixture in DOT Specification MC-331 insulated tank motor vehicles under specified conditions.	1
6944	To ship a Class A explosive (liquid) in specially designed desiccators.	1
6946	To ship certain non-liquefied compressed gases in accordance with 49 CFR 173.34(e)(15), except cylinders over 35 years old.	2
6949	To ship elemental phosphorus in marine portable tanks with external steam coils, each having a design capacity of 3,200 gallons.	1
6951	To ship nitrogen in circumferentially welded steel cylinders which comply with DOT Specification 3E with certain exceptions.	1
6958	To ship elemental bromine, in a lead-lined portable tank manufactured in accordance with DOT Specification MC-312 and ISO standards and having a design pressure of 150 psig.	1
6960	To ship certain corrosive liquids in non-specification stainless steel drums, tighthead, with rated capacity not exceeding 55 gallons.	2
6962	To ship argon or helium in DOT Specification 3AA1800 or 3AA2000 cylinders forming an integral part of a leak transfer standard.	1
6963	To ship anhydrous hydrofluoric acid or hydrofluoric acid in a non-specification portable tank complying with ISO standards and hydrostatically tested to 150 psig.	1
6964	To ship Class B poisonous solid in non-specification multi-wall reinforced bags, fabricated of polybutylene film, having a volumetric capacity of approximately 50 cubic feet, in containerized loads.	1
6969	To ship, via passenger carrying aircraft, oxygen in a DOT Specification 3AA cylinder intergal to a transport incubator.	4
6971	To ship corrosive materials and certain other hazardous materials in inside metal boxes or cases overpacked in strong outside wooden or fiberboard packagings described as "Chemical Kits."	1
6974	To ship oxygen in steel cylinders made in compliance with DOT Specification 3E with certain exceptions.	2
6978	To ship or transport a ethane-propane mixture in DOT Specification MC-331 insulated tank motor vehicles.	1

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
6983	To ship oxygen in a non-specification refillable cylinder, having internal copper fins, made of two seamless Inconel 718 shells having one girth weld.	2
6984	To ship 1,000 or less electric blasting caps in inside pasteboard cartons or tubes overpacked in an IME Standard 22 container.	1
6985	To ship diallyl phthalatepyrotechnic material as a flammable solid when not more than one pound net weight of the commodity is packed in one outside container consisting of an aluminum case in a DOT Specification 15A wooden box.	1
6986	To manufacture, mark and sell a non-specification, reusable, blow-molded, closed head, polyethylene container of 55-gallon capacity for use without overpack.	1
6998	To ship hydraulic accumulators precharged with nitrogen in non-specification steel pressure vessels having a maximum capacity of 3,435 cubic inches each.	2
6999	To authorize the military to leave loading hatches open overnight under certain conditions.	1
7001	To ship, via private motor vehicle, certain oxidizing materials in a non-specification single-trip, removable head polyethylene container, for use without overpack, of not over three-gallon capacity.	1
7005	To ship certain corrosives, poison B liquids, combustible liquids, and flammable liquids, in foreign-made non-specification portable tanks having an MAWP of 43 psi.	2
7007	To ship chlorine in a non-specification tank car made in accordance with DOT Specification 110A500W tanks.	1
7010	To ship elemental bromine in lead-lined portable tanks built to DOT Specification MC-312 and ISO standards.	1
7011	To ship caustic soda beads in non-specification blow-molded polyethylene container with removable head, not over 57-gallon capacity.	1
7013	To transport certain flammable compressed gases in privately owned and operated tank motor vehicles having tanks constructed in accordance with U68 and U69 of the ASME Code.	2
7014	To ship ethyl alcohol in a non-specification steel portable tank having a capacity of 5,443 gallons.	1
7015	To ship liquefied helium in a non-specification insulated, containerized portable tank having a water capacity of 9,085 gallons.	1
7019	To ship phosphorus pentasulfide in DOT Specification 56 metal portable tanks having a maximum gross weight of 7,700 pounds.	1
7023	To ship certain corrosives and oxidizer materials in non-specification lined, steel portable tanks equivalent to DOT Specification 60.	2
7024	To ship indigo dye paste in a non-specification collapsible rubber container identified as "SEALDTANK."	1
7025	To ship liquefied helium and hydrogen in a non-specification 12,700 gallon nominal water capacity cargo tank.	1
7026	To ship bromotrifluoromethane pressurized with nitrogen in non-specification spherical steel pressure vessels patterned after DOT Specification 4DS.	2
7031	To ship high explosives in a fiberboard box having hand-holes and complying with DOT Specification 12H except joints are formed and flaps sealed by hot metal adhesive.	1
7032	To ship a corrosive solid in non-specification removable head drums made a 16-gauge stainless steel, having 55-gallon rated capacity, and enclosed with a plywood cover.	2
7035	To manufacture, mark and sell a non-specification reusable, tight-head, molded polyethylene container of 55-gallon capacity, for use without overpack.	1

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
7036	To ship anhydrous ammonia in nonrefillable aluminum heat pipes.	1
7038	To ship certain Class B poisonous liquids, in a non-specification steel cargo tank built in accordance with the ASME Code.	2
7040	To ship certain corrosive liquids, n.o.s., in DOT Specification 6D cylindrical steel ovepack with inside DOT Specification 2SL container.	1
7041	To ship aluminum alkyls or pyroforic liquids, n.o.s., in an insulated non-specification cargo tank comparable to DOT Specification MC-331.	2
7042	To manufacture, mark and sell non-specification seamless aluminum cylinders for the shipment of various compressed gases and certain other hazardous materials.	2
7046	To ship certain corrosive liquids and a certain oxidizer in four glass-lined cargo tanks equivalent to DOT Specification MC-312.	2
7051	To ship antimony pentafluoride in DOT Specification 12A and 12B fiberboard boxes having inside two-quart capacity maximum FEP Teflon bottles.	1
7052	To ship lithium batteries subject to certain qualifications and specialized packaging.	1
7054	To ship anhydrous ammonia containing less than 0.2% water by weight in four DOT Specification MC-330 tank motor vehicles.	1
7056	To authorize a one-time reuse of DOT Specification 37A275 drums containing sodium hydrosulfite.	1
7060	To transport radioactive materials in excess of prescribed limitations under specified conditions.	1
7062	To ship certain corrosive liquids in a tight-head polyethylene container having a separately formed head attached to the body by a thermal fusion process and a rated capacity not exceeding 6 gallons.	2
7063	To ship phosphorus pentachloride in a single-trip, molded, removable head, polyethylene container not exceeding 5-gallon capacity.	1
7066	To ship certain flammable liquids, and Class B poisonous liquids in a non-specification stainless steel portable tank.	2
7070	To ship a certain poisonous solid, packaged in compliance with 49 CFR 173.364.	1
7071	To ship certain corrosive liquids in inside polyethylene bottles packed with nonhazardous materials in the same outside fiberboard box.	1
7072	To manufacture, mark and sell non-specification molded polyethylene container (Delex 55) of 55-gallon capacity.	
7073	To ship motor fuel antiknock compounds in non-specification ISO Type 1C portable tanks having a design pressure of 100 psig.	1
7076	To ship chemical kits containing corrosive liquids packed with nonhazardous articles.	2
7077	To ship certain compressed gases in a non-specification ISO type portable tank having a design working pressure of 290 psig.	1
7078	To transport radioactive materials in excess of current quantity limitations under specified conditions.	2
7082	To manufacture, mark and sell a non-specification polyethylene container for the shipment of certain corrosive liquids, flammable liquids and oxidizers.	1
7085	To ship a Class C explosive pest repellant in DOT Specification 12B fiberboard boxes under specified conditions.	1

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
7087	To ship orthodontic bonding kits in non-specification packages.	2
7096	To ship bromotrifluoromethane in non-specification cylinders.	2
7097	To ship dry mixtures of parathion and tetraethyl dithio pyrophosphate containing not more than 25% by weight under the exemption specified in 49 CFR 173.337(f) subject to certain conditions.	2
7189	To transport liquefied petroleum gas or propane in a DOT Specification 4BW240 cylinder or DOT Specification 51 portable tank.	2
7192	To ship liquefied hydrogen in a non-specification cargo tank having a design pressure of 50 psig.	2
7201	To carry certain modules containing oxygen, carbon dioxide, or carbon dioxide-oxygen mixture for transporting human organs in the cabin of passenger-carrying aircraft.	4
7202	To ship a preservation system containing oxygen and carbon dioxide under pressure for transporting human organs for transplant purposes.	4
7205	To allow the elimination of partition bulkheads and type "A" dunnage floors for certain military explosives under certain conditions.	1
7206	To transport phosphoric acid, phosphoric acid solutions, phosphatic fertilizer solutions, and fertilizer solutions classified as corrosive in non-specification cargo tanks manufactured of Type 304 stainless steel.	2
7207	To ship ethylene, cryogenic liquid in a non-specification cargo tank.	2
7208	To ship jet thrust units in quantities greater than 550 pounds by cargo-only aircraft.	2
7218	To manufacture, mark and sell a non-specification filament-wound, reinforced plastic aluminum-lined cylinders for the shipment of certain nonflammable compressed gases.	2
7220	To manufacture, mark and sell a non-specification 55-gallon blow-molded polyethylene container for the shipment of corrosive liquids, hydrogen peroxide, flammable liquids, and Class B poisonous liquids.	2
7227	To ship liquid nitrogen in non-specification portable tanks having a MAWP of 43 psig.	1
7228	To load blasting caps aboard a cargo vessel by use of a loading chute from the wharf to the stern deck.	1
7231	To ship an 80% aqueous solution of hydroxymethyl phosphonium chloride or hydroxymethyl phosphonium sulfate in a collapsible rubber container called "SEALDTANK".	1
7235	To manufacture, mark and sell a non-specification seamless aluminum cylinder with hoop reinforcement provided by filament-wound reinforced plastic.	2
7239	To ship nitro carbo nitrate in a collapsible rubber container called "SEALDTANK."	1
7244	To transport a portable organ transplant unit containing compressed gases.	4
7247	To use 4-inch by 6-inch uprights in lieu of 6-inch by 6-inch uprights for bulk-heads for the shipment of military explosives.	1
7249	To ship liquid paint in 5-gallon and 30-gallon DOT Specification 34 polyethylene containers.	2
7252	To ship liquid and solid propellant explosives in DOT Specification 17H drums with a 0.015-inch thick polyethylene liner.	2
7253	To deviate from the stowage requirements for lithium hydroxide anhydrous and lithium hydroxide monohydrate.	1
7255	To authorize the Department of Defense to load military explosives simultaneously in the same hatch.	1

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
7257	To ship hydrochloric acid, phosphoric acid, and potassium hydroxide in non-specification portable tanks.	2
7259	To ship phosphorus pentasulfide in DOT Specification 56 portable tanks with a gross weight of 5,000 pounds.	2
7261	To ship phosphorus solid sludge residue in non-specification storage tanks.	3
7266	To ship trichloro-s-triazinetrione in accordance with 49 CFR 173.217(b), except the outside container is a polypropylene extruded cellular box.	2
7268	To ship a mixture of dichlorodifluoromethane and ethylene oxide in DOT Specification 39 cylinders having a maximum water capacity of 55 pounds and a service pressure of 260 psig.	2
7269	To ship triaminatrinitrobenzene (TATB) and trichlorotrinitrobenzene (TCTNB) in inside sift-proof paper or plastic bags overpacked in a DOT Specification 21C fiber drum having a maximum net weight of 100 pounds.	2
7270	To ship certain combustible liquids in non-specification portable tanks.	2
7274	To ship liquefied argon, nitrogen, or oxygen in CGA proposed Specification 51L and Linde Model 200-VCC vacuum insulated portable tanks in roll-on/roll-off service.	1
7275	To transport Classes A, B, and C explosives that are not permitted for shipment by air or are in quantities greater than those prescribed for shipment by air in 49 CFR.	1
7277	To manufacture, mark and sell a non-specification filament-wound reinforced plastic aluminum-lined cylinder for the shipment of compressed air or oxygen.	2
7278	To ship caustic soda or sulfuric acid in DOT Specification 111A100W tank cars equipped with a safety vent dampening device.	1
7280	To ship motor vehicles, fixed-wing aircraft and helicopters with their fuel tanks not over ¼ full.	1
7282	To ship mixtures containing nonflammable fluorocarbon compressed gas or gases where mixtures are nonpoisonous and nonflammable in non-specification steel portable tanks.	2
7285	To ship certain nonflammable liquefied gases in a non-specification intermodal portable tank.	1
7286	To ship compressed gases specified in 49 CFR 173.34(e)(15)(ii) in DOT Specification 3A or 3AA cylinders and cylinders marked ICC-3, 3A, or 3AA not exceeding 125 pounds of water capacity, except age of cylinder is over 35 years.	2
7404	To ship materials which are Class B poisons or irritants but which do not meet the definition of any other hazard class.	2
7405	To ship hydrochloric acid in concentrations of less than 10 percent by weight hydrogen chloride in test kits in a 200-pound test fiberboard box overpacked in a DOT Specification 12B fiberboard box.	2
7407	To ship incendiary grenades by helicopter under contract to the U.S. Forest Service.	4
7409	To ship flammable and combustible liquids in portable tanks manufactured in accordance with DOT Specification MC-303 cargo tanks.	2
7413	To manufacture, mark and sell a non-specification brazed steel cylinder for the shipment of carbon dioxide, liquefied.	2
7418	To ship whiskey and distilled spirits in non-specification portable tanks patterned after DOT Specification MC-307.	2
7423	To ship certain flammable solids in DOT Specification 56 portable tanks.	2
7424	To ship high explosives (dynamite) containing 10 percent or less of a liquid explosive ingredient.	2

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
7426	To ship an aqueous solution of sodium polysulfide and sodium sulfhydrate and aqueous solution of sodium sulfhydrate in certain DOT Specification MC-303 and MC-306 cargo tanks.	2
7428	To manufacture, mark and sell a non-specification seamless wire-hoop-wrapped steel cylinder for the shipment of hydrogen, argon, helium, nitrogen, and oxygen.	1
7435	To transport Classes A and B explosives by cargo-only aircraft under specified conditions.	3
7438	To ship motor fuel antiknock compound in cargo tanks designed and built to ASME Specification U68.	3
7440	To ship nitrogen, isopropyl alcohol, and ammonia solution in non-specification aluminum containers.	2
7442	To ship tertiary dodecyl mercaptan in non-specification portable tanks.	2
7444	To transport liquefied natural gas and liquefied ethylene in non-specification cargo tanks having a water capacity of 12,700 gallons.	2
7446	To manufacture, mark and sell a non-specification aluminum cylinder complying with DOT Specification 3B, with certain exceptions, for the shipment of dry powder fire extinguishant charged with compressed air or nitrogen	2
7451	To ship liquid argon, pressurized, in a Linde Model 200-VCC Transportation Cold Converter mounted in a Matson Dry Freight Container.	1
7454	To ship nitro carbo nitrate in the same magazine with dynamite without any type bulkhead separating these materials.	1
7455	To handle and store certain explosive material on an unmanned barge under specified conditions.	3
7457	To authorize stowage of freight containers of Class A explosives on deck adjacent to or over a hold containing cotton under specified conditions.	1
7458	To manufacture, mark and sell a seamless cylinder made of Monel 400 material for the shipment of hydrogen chloride or chlorine.	2
7465	To transport recreational vehicles which have liquefied petroleum gas cylinders attached to them on passenger vessels under specified conditions.	1
7466	To ship certain flammable liquid mixtures in a spun 99-percent pure aluminum can.	2
7476	To manufacture, mark and sell a non-specification cargo tank having an internal pressure of 40 psig for the shipment of certain flammable and corrosive liquid.	2
7477	To ship monobromotrifluoromethane, carbon dioxide, or compressed gas, n.o.s., in a non-specification seamless aluminum cylinder in compliance with DOT-E 6498, except for threaded end opening.	2
7482	To ship phosphoric acid purification sludge waste No. 23 in non-specification polyethylene drums.	2
7483	To ship certain corrosive liquids, flammable liquids, and combustible liquids in non-specification IMCO Type 2 portable tanks.	2
7489	To ship an alkaline corrosive liquid in an inside metal container having a capacity of 1 quart or less in a DOT Specification 37A metal drum. Inside container may be placed with its filling hole in a horizontal position.	1
7491	To manufacture, mark and sell a non-specification vacuum insulated tank car for the shipment of liquefied ethylene.	1
7493	To ship certain corrosive liquids, flammable liquids, and combustible liquids in non-specification IMCO Type 2 portable tanks.	2
7495	To manufacture, mark and sell a non-specification portable steel tank (framed) constructed in accordance with DOT Specification MC-331, except for supporting and anchoring.	1

Number	Purpose	Reason
7498	To ship hydrochloric acid as prescribed in 49 CFR 173.263(a)(15), except that the PE bottles must be overpacked in a non-specification corrugated polypropylene box.	1
7502	To manufacture, mark and sell a non-specification reusable rotationally molded polyethylene container for the shipment of corrosive liquids.	1
7503	To ship certain Class B poisonous liquids, corrosives, flammable and combustible liquids in non-specification IMCO Type 1 portable tanks.	2
7505	To ship certain Class B poisonous liquids for which DOT Specification 17C drums are authorized.	2
7512	To ship certain flammable and combustible liquids in portable tanks complying with DOT Specification MC-306, except for certain conditions.	2
7513	To ship liquid oxygen in A 550-gallon cargo tank built and tested to DOT Specification MC-331.	1
7516	To ship ethanol, certain corrosive liquids, Class B poisonous liquids and all combustible liquids in non-specification portable tanks.	2
7517	To manufacture, mark and sell a non-specification fusion welded tank car tank for the shipment of chlorine.	1
7520	To ship certain flammable and combustible liquids in non-specification steel portable tanks having a water capacity of 5,000 gallons and a MAWP of 30 psig.	2
7526	To ship certain pyrophoric liquids in a non-specification portable tank.	2
7528	To recondition, convert, mark, and sell an all 18-gauge 55-gallon capacity "Sterilpac" type tight head steel drum converted to fully comply with DOT Specification 17H except for location embossment.	2
7529	To ship helium in a non-specification welded steel pressure vessel complying with DOT Specification 39 with certain exceptions.	1
7536	To allow an increase to the maximum allowable draft weights for five-ton and ten-ton rated booms for military explosives.	1
7538	To manufacture, mark and sell a non-specification reusable rotationally molded polyethylene container for the shipment of corrosive liquids.	1
7541	To ship certain flammable and nonflammable compressed gases in non-specification portable tanks having a minimum design pressure of 180 psig and a nominal water capacity of 5,100 gallons.	2
7542	To manufacture, mark and sell a non-specification steel cylinder complying with DOT Specification 4BW with exceptions.	2
7543	To ship a certain flammable solid in a DOT Specification 56 portable tank mounted inside a modified dempster box.	1
7544	To ship certain corrosive liquids in a DOT Specification 2U polyethylene container overpacked in a non-specification fiberboard box.	2
7546	To ship certain flammable liquids, nonflammable and flammable compressed gases in a heat pipe radiator assembly having a safety factor of not less than 4.0.	3
7548	To authorize Class XC military explosives in MILVAN containers to be stowed on deck over the square of the hatch under certain conditions.	1
7549	To ship ethyl chlorothioformate in a portable tank complying with DOT Specification 51, except the material used is 316L stainless steel.	1
7555	To transport hydrochloric acid, hydrofluosilicic acid, or phosphorus acid in non-specification (FRP) cargo tanks.	1
7558	To ship liquid argon, nitrogen, and oxygen in a non-specification insulated portable tank.	2

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
7559	To ship aluminum borohydride in a brass cylinder not to exceed 0.25 inches in diameter by 0.7 inches long overpacked in a strong fiberboard box.	1
7567	To transport Classes A, B and C explosives by cargo-only aircraft for the DOD under specified conditions.	1
7568	To authorize nitro carbo nitrate in paper bags, loaded in containers, to be loaded/handled/off-loaded at nonisolated facilities under certain conditions.	1
7573	To authorize shipments of explosives and other hazardous materials deemed essential to national defense via DOD contract airlift services under contract to MAC under certain conditions.	1
7574	To transport Classes A, B, and C explosives for the DOD, under specified conditions.	1
7576	To ship chloroform and carbon tetrachloride in a non-specification portable tank having a capacity of 4,230 gallons.	2
7578	To ship propellant explosives, solid, in viscose rayon bags overpacked in a DOT Specification 21C fiber drum.	2
7584	To ship hydrogen peroxide solution, not over 70 percent, in a non-specification portable tank having a capacity of 4,625 gallons.	2
7586	To ship rocket motors, Class B explosives in a propulsive state between specified points.	1
7589	To ship a certain corrosive liquid in a cylindrical glass carboy of 8-gallon capacity under specified conditions.	1
7590	To transport packages containing Class B poisons in a specially designed reusable overpack in the same vehicle with foodstuff feed or any other edible material.	1
7594	To ship methyl bromide, liquid, in a non-specification portable tank having a MAWP of 213 psig and a water capacity of 2,625 gallons.	2
7595	To ship organic phosphate compound or mixtures thereof in DOT Specification MC-312 cargo tanks of not over 5,000 gallons.	1
7596	To ship certain flammable liquids and combustible liquids in non-specification portable tanks having a capacity of 6,100 gallons and complying with DOT Specification MC-307.	2
7597	To ship certain Class B poison liquids in DOT Specification 17E 55-gallon drums by private carriage.	2
7598	To ship certain corrosive materials, oxidizers, and Class B poisons in a portable tank complying with DOT Specification 60, except ends are bolted instead of welded.	2
7600	To ship liquefied ethylene in a non-specification cargo tank having a capacity of 10,800 gallons.	2
7601	To ship a certain high explosive liquid in a non-specification container between certain points.	3
7603	To ship certain nonflammable gases in non-specification vacuum insulated cargo tanks.	1
7605	To ship partially disassembled aircraft with explosive components under specified conditions.	1
7607	To ship hydrogen in a non-specification cylinder as part of a portable gas chromatograph.	1
7610	To ship certain flammable liquids in a non-specification portable tank having a capacity of 5,800 gallons and a minimum design pressure of 25 psig.	2
7611	To ship small arms ammunition in inside pasteboard boxes overpacked in a high density polyethylene box.	2

Number	Purpose	Reason
7613	To ship certain corrosive liquids in an unlined one-gallon tin can under certain conditions.	1
7615	To ship benzoyl peroxide in a 30-gallon "Liquipak" fiber drum.	2
7616	To transport certain hazardous materials by rail which authorize a deviation to the full certification of 172.204(a), (d).	1
7617	To transport ammonium nitrate (no organic coating) in sift-proof aluminum freight containers having not over 20 tons of product per container.	5
7620	To ship certain corrosive liquids, oxidizers, flammable liquids, poison B liquids, and combustible liquids in non-specification portable tanks having a capacity of 3,170 gallons.	2
7621	To ship methyl bromide an chloropicrin, liquid in non-specification portable tanks having a maximum allowable working pressure of 250 psig.	2
7622	To ship a certain Class B poisonous solid in a DOT Specification 56 metal portable tank with nonsifting closures.	2
7625	To ship certain corrosive liquids in DOT Specification 56 portable tanks under certain conditions.	2
7628	To ship hydrofluroic acid solution in a DOT Specification 111A100W5 tank car, except tank must be equipped with an approved safety relief valve instead of a safety vent.	5
7629	To ship certain flammable, corrosive, and combustible liquids in non-specification intermodal portable tanks.	2
7632	To ship ethane-propane mixture loaded at a temperature of −10°F. in a DOT Specification MC-331 tank motor vehicle under specified conditions.	1
7633	To ship certain flammable liquids, corrosive liquids, poison B liquids and ORM-A materials in a non-specification stainless steel portable tank having a nominal water capacity of 5,284 gallons.	2
7638	To manufacture, mark, and sell a DOT Specification 4L welded cylinder having a service pressure of 292 psi for the shipment of carbon dioxide, liquefied, or nitrous oxide, liquefied.	4
7640	To ship hydrogen peroxide solution (over 52% peroxide) in DOT Specification 34 containers of 15-gallon capacity.	2
7641	To transport motor vehicles having fuel tanks one-fourth or less full under specified conditions.	5
7648	To transport aerial illuminating flares in small cargo-only aircraft for test purposes.	3
7650	To ship dichlorodifluoromethane or monochloropentafluoroethane in a non-specification portable tank having a nominal water capacity of 3,225 gallons and a design pressure of 223 psig.	2
7651	To ship a certain propellant explosive, liquid, in a "SEALDTANK" under certain conditions.	1
7654	To ship acetaldehyde in one-pint glass bottles inside a metal container and further overpacked in a DOT Specification 12B fiberboard box.	2
7657	To manufacture, mark and sell a non-specification stainless steel cylinder complying with DOT Specification 3E with certain exceptions.	2
7658	To ship consumer commodities in packagings not presently authorized in § 173.1200.	2
7665	To ship crude oil petroleum in a non-specification portable tank.	2
7666	To authorize stowage of freight containers in an athwartship direction.	1
7671	To ship certain corrosive liquids, flammable liquids, poison B liquids, combustible liquids, and ORM-A in non-specification IMCO Type 2 portable tanks.	2
7674	To ship explosive mines or explosive torpedoes on a specially designed skid under specified conditions.	1

Number	Purpose	Reason
7677	To ship liquefied methane or natural gas in a non-specification portable tank constructed in accordance with the ASME Code.	1
7680	To ship sodium amide in reusable non-specification stainless steel drum of not over 41 gallons.	2
7682	To manufacture, mark and sell a non-specification reusable molded polyethylene container of 35 gallons for the shipment of corrosive liquid for which a DOT Specification 34 is authorized.	2
7683	To manufacture, mark and sell a non-specification cargo tank for the shipment of a liquefied ethane-propane mixture.	1
7685	To ship certain high explosives in a 4-mil polyethylene bag securely closed, overpacked in another 4-mil bag and closed, and further overpacked in a 21C250 fiber drum.	2
7690	To ship isopropanol or alcohol, n.o.s., in a DOT Specification 34 container.	1
7694	To ship a missile cold gas actuation system in non-specification steel cylinders complying with DOT Specification 39 with certain exceptions.	2
7695	To ship certain Class B poisons, flammable liquids, corrosive liquids, combustible liquids and ORM-A liquids in a non-specification IMCO Type I insulated portable tanks.	2
7699	To ship a certain flammable liquid mixture in a DOT Specification 51 portable tank.	2
7700	To transport gasoline in the baggage compartment of helicopters instead of using external cargo racks.	1
7701	To ship certain flammable liquids in non-specification stainless steel portable tanks having a capacity of 5,548 gallons.	2
7708	To ship compressed air in a non-specification girth welded steel cylinder having a maximum service pressure of 6,000 psi.	2
7710	To manufacture, mark and sell a corrugated fiberboard box which complies with DOT Specification 12P, except if has two inner DOT Specification 2U containers of 2.5-gallon capacity.	2
7714	To ship certain corrosive liquids, flammable, poison B, combustible liquids, and ORM-A commodities in a non-specification portable tank having a MAWP of 43 psig and a capacity of 5,284 gallons.	2
7716	To ship ammonium nitrate in DOT Specification 12H65 fiberboard box with a plastic liner bag.	2
7719	To ship methylacethylene-propadiene, stabilized, in DOT Specification 39 cylinders.	2
7720	To ship alpha picoline and other flammable liquids in a non-specification stainless steel cargo tank having a design pressure of 25 psig.	2
7721	To manufacture, mark and sell a non-specification steel cylinder complying with DOT Specification 39 with certain exceptions.	1
7725	To ship certain corrosive materials, flammable gases, nonflammable gases, oxidizing materials, and flammable liquids by using a coded format.	1
7726	To manufacture, mark and sell a small low pressure non-specification container as components of a cooling module assembly for helium and nitrogen.	1
7727	To ship a certain poison B liquid in reconditioned DOT Specification 17E drums.	3
7730	To transport certain corrosive liquids in a DOT Specification MC-312 cargo tank, except the remote means to actuate the valve closure is no less than 4 feet away.	3
7731	To manufacture, mark and sell a non-specification insulated portable tank for the shipment of pressurized liquid helium.	2
7734	To manufacture, mark and sell a non-specification removable head molded polyethylene container having a capacity of 5 gallons for the shipment of corrosive liquids.	1

Number	Purpose	Reason
7735	To manufacture, mark and sell a DOT Specification 34 container for the shipment of certain flammable liquids.	1
7737	To manufacture, mark and sell a non-specification aluminum cylinder complying with DOT Specification 3E with certain exceptions.	2
7741	To ship anhydrous hydrazine or helium in a non-specification packaging.	2
7743	To ship dichlorosilane in a DOT Specification 51 portable tank of 1,400 gallon water capacity and a MAWP of 100 psig.	2
7744	To ship liquefied hydrogen chloride in a non-specification cargo tank having a design pressure of 450 psig and a water capacity of 4,600 gallons.	2
7752	To ship certain corrosive liquids, flammable liquids, poison B liquids, and combustible liquids in non-specification IMCO Type 2 portable tanks.	2
7753	To ship yellow phosphorus, in water, in DOT Specification 17C steel drums having not more than 735 pounds of product and not less than 15 pounds of water.	2
7754	To ship nonelectric blasting caps in polyethylene plastic bags, overpacked in a DOT Specification 12H fiberboard box.	1
7755	To ship analytical standards containing small quantities of liquid hazardous materials in prescribed packagings essentially without regulation.	1
7759	To ship dichloropropene-dichloropropane mixture in a non-specification portable tank having a design pressure of 25 psig.	2
7765	To ship nitrogen in a non-specification welded steel sphere complying with DOT Specification 39 with certain exceptions.	2
7767	To manufacture, mark and sell a non-specification welded cylinder having 200-cubic inch water capacity and a 900 psi service pressure for the shipment of bromotrifluoromethane pressurized with nitrogen.	1
7768	To ship certain oxidizers in 57-gallon removable head polyethylene drums.	2
7769	To manufacture, mark and sell a non-specification filament-wound reinforced plastic aluminum lined cylinder for the shipment of compressed air.	1
7770	To ship hydrogen fluoride in a non-specification portable tank having a MAWP of 100 psig.	2
7772	To ship certain flammable liquids in a non-specification steel portable tank having a capacity of 5,125 gallons and a MAWP of 56.6 psig.	2
7774	To ship bromine trifluoride in non-specification cylinders.	2
7775	To ship nitro carbo nitrate and ammonium nitrate with dynamite in a roll-on/roll-off rail car aboard a cargo vessel without a bulkhead separating the materials.	1
7777	To ship spent sulfuric acid in DOT Specification 34, 12P, 6D, or 37M and DOT Specification 12B fiberboard boxes with inside polyethylene containers under specified conditions.	2
7778	To ship distilled spirits in DOT Specification 10B barrels or non-specification barrels without certain markings and labels under specified conditions.	3
7788	To manufacture, mark and sell 20 and 35-gallon capacity rotationally molded polyethylene drums for the shipment of certain corrosive liquids.	1
7791	To transport flammable and combustible fuels in non-specification cargo tanks aboard cargo vessels for resupply purposes.	2
7792	To authorize return shipment of empty tank cars without the shippers certification on the shipping papers.	2

Number	Purpose	Reason
7793	To ship hexachlorocyclopentadiene in non-specification insulated, portable tanks complying with IMCO Type 1.	2
7795	To ship certain poison B liquids, oxidizers, corrosives, flammable liquids, and combustible liquids in a non-specification portable tank with heating coils.	2
7796	To ship chloropicrin in non-specification metal cans of not over 1.5 pounds each under certain conditions.	2
7798	To ship sulfuric acid, spent, in inside high density one-quart polyethylene containers under certain conditions.	1
7802	To manufacture, mark, and sell a non-specification removable-head, molded polyethylene container, of 3.5 or 5-gallon capacity for the shipment of certain flammable and corrosive liquids.	1
7804	To manufacture, mark and sell a DOT Specification 2SL inside polyethylene container of high density, high-molecular weight resin.	2
7807	To transport gasoline in non-specification tanks which must be attached to, or contained in, a 40-foot semi-Dynamometer van under certain conditions.	3
7808	To ship insecticide, liquefied gas, in 35-ounce water capacity seamless DOT Specification 39 aluminum cylinders designed to burst at 400 psi and charged to not over 130 psi at 130°F.	1
7811	To ship certain corrosive liquids and flammable liquids in a fiberboard box which complies with DOT Specification 12A, except that it has two handholes on opposite sides.	2
7819	To ship certain corrosive liquids, flammable liquids, combustible liquids and poison B liquids in non-specification IMCO Type 1 insulated portable tanks.	2
7820	To ship certain corrosive liquids, flammable liquids, poison B liquids, and combustible liquids in non-specification IMCO Type 1 portable tanks.	2
7822	To ship helium in a non-specification, triple shell, portable tank having a design pressure of 65 psig and a capacity of 11,000 gallons.	2
7823	To ship iodine pentafluoride in a non-specification welded stainless steel cylinder having a water capacity of 1,000 pounds and a service pressure of 240 psig.	2
7824	To ship certain flammable and corrosive liquids in a marine portable tank having a capacity of not over 540 gallons.	2
7827	To ship sodium chlorate in a tight, sift-proof, ISO freight container equipped with a polyethylene liner bag.	1
7828	To transport liquefied petroleum gas or propane in a DOT Specification 51 portable tank.	1
7830	To ship certain flammables, Class B poisons, corrosives, combustibles, and ORM-A commodities in a non-specification IMCO Type 2 insulated stainless steel portable tank.	2
7831	To ship ammonium nitrate fertilizer in a non-specification woven polypropylene bag.	2
7832	To ship liquefied neon, deuterium or hydrogen in a non-specification vacuum insulated cargo tank.	2
7834	To ship sulfur hexafluoride in magnaflux X-ray machines under certain conditions.	1
7835	To ship or transport compressed gas cylinders bearing the flammable gas label, the oxidizer label or the poison gas label and tank car tanks bearing the poison gas label on the same motor vehicle.	1
7840	To ship a Class C explosive and oxygen in the same package under specified conditions.	1
7845	To transport liquefied petroleum gas (propane) in DOT Specifications 4B240, 4BA240, and 4BW240 cylinders.	1

Number	*Purpose*	*Reason*
7846	To ship argon, helium or mixtures of argon and helium in seamless steel tanks complying with DOT Specification 107A, except they are not mounted on a rail car.	1
7849	To ship argon, nitrogen, and oxygen in a non-specification cargo tank having a design pressure of 250 psig.	2
7852	To manufacture, mark and sell a non-specification vacuum insulated portable tank for the shipment of argon, nitrogen and oxygen.	2
7853	To ship certain flammable liquids and a flammable solid in a non-specification fiberboard drum.	2
7857	To ship anhydrous dimethylamine, monomethylamine and trimethylamine in a non-specification non-insulated steel portable tank.	2
7862	To ship xenon in a non-specification, steel, single-trip, inside container overpacked in a styrofoam lined plywood box.	2
7864	To ship potassium, metal liquid alloy, or sodium, metal liquid alloy, in DOT Specification 4BW240 cylinders under specified conditions.	2
7865	To manufacture, mark and sell a welded nonrefillable, non-specification steel cylinder complying with DOT Specification 39 with certain exceptions for the shipment of nitrogen.	2
7869	To ship rust preventing compounds in DOT Specification 57 portable tanks, fabricated of Type 316 stainless steel.	1
7871	To transport electric blasting caps on deck with Class A explosives and nitro carbo nitrate or ammonium nitrate without the required 10-foot separation.	3
7872	To ship acrolein, inhibited in an insulated DOT Specification 51 portable tank.	2
7873	To ship methyl bromide and nonflammable, nonliquefied compressed gas mixture in a non-specification portable tank.	2
7874	To ship metallic sodium distributed in pellets throughout the inner glass tube of reprographic lamps overpacked in a non-specification fiberboard box.	1
7876	To authorize the description "etching acid, liquid, n.o.s.," to be used for products which do not comply with the definition in CFR 173.299(a).	1
7879	To ship bromine trifluoride in a non-specification seamless cylinder described as a chemical casing cutter tool made of 4130 steel.	1
7881	To stow sodium sulfide under deck when transported by cargo vessel.	1
7882	To ship certain flammable liquids and combustible liquids in non-specification portable tanks.	2
7883	To ship sodium metal in a DOT Specification 105A300W tank car, except that the tank is not required to be hydrostatically retested in accordance with CFR 173.31(c).	1
7885	To ship certain flammable gases, flammable liquids, poison B, and ORM-D materials in a non-specification, metallic instrument and overpacked in strong outside packaging.	1
7886	To ship a liquid paint remover in a non-specification metal can/ fiberboard box packaging.	2
7887	To ship toy propellant devices and igniters as a flammable solid, overpacked in DOT Specification wooden and fiberboard boxes.	1
7888	To manufacture, mark and sell a non-specification reusable polyethylene container of 55-gallon capacity for the shipment of corrosive liquids.	1
7890	To ship methyl isocyanate in a DOT Specification 51 portable tank.	2

Number	Purpose	Reason
7891	To transport packages without the poison label and the flammable solid W placard under specified conditions.	1
7893	To ship hydrogen peroxide solution not exceeding 70 percent in a non-specification stainless steel portable tank having a capacity of 4,625 gallons.	2
7894	To ship or transport waste paper, wet, in wire bound bales.	1
7895	To ship certain corrosive materials in DOT Specification 51 stainless steel portable tanks.	2
7896	To ship a certain poison B solid, flammable liquid, and a corrosive liquid in a non-specification portable tank meeting IMCO Type 2 specifications.	2
7897	To ship certain flammable liquids, corrosive liquids, poison B liquids, combustible liquids, and ORM-A materials in non-specification portable tanks meeting IMCO Type 2 specifications.	2
7898	To ship methylhydrazine in certain DOT Specification tank cars constructed of certain alloys of aluminum and steel.	2
7901	To ship a certain flammable liquid mixture in a non-specification portable tank meeting IMCO Type I specifications.	2
7902	To authorize certain Class C explosives to be transported in motor vehicles placarded "DANGEROUS" instead of "FLAMMABLE."	4
7904	To manufacture, mark and sell a non-specification welded or seamless steel cylinder (toroids) for the shipment of helium, argon or nitrogen.	1
7907	To ship wet nitrocellulose in non-specification fiberboard drums.	2
7908	To ship a certain flammable liquid in a non-specification portable tank meeting IMCO Type I specifications.	2
7909	To manufacture, mark and sell a special container for the shipment of limited quantities of poisonous liquids and solids without the poison label.	1
7910	To manufacture, mark and sell a non-specification container made from plastic instead of metal for the shipment of ORM-D materials.	1
7911	To manufacture, mark and sell a non-specification cargo tank for the shipment of liquefied ethylene, methane or natural gas.	2
7915	To ship certain propellant explosives in water in DOT Specification MC-307 or MC-312 cargo tanks.	1
7916	To ship chemical kits containing small quantities of a flammable liquid.	1
7917	To ship liquid nitrogen in a non-specification portable tank having a capacity of 2,200 gallons.	2
7919	To stow certain hazardous materials in the same hold or compartment which are not normally stowed together on a cargo vessel.	1
7921	To ship analytical kits containing reagent chemicals in sealed glass ampules essentially without regulation.	1
7922	To ship a compressed argon-helium mixture in a non-refillable steel vessel, described as an inflator assembly containing a gas generator.	4
7923	To ship a compressed argon-helium mixture in a non-refillable steel cylinder, described as a hybrid steering wheel inflator assembly.	4
7924	To ship limited qunatities of small lithium cells as a consumer commodity.	5
7925	To ship certain corrosive liquids in a non-specification, rubber-lined portable tank meeting IMCO Type I specifications.	2
7926	To ship a mixture of chloropicrin and ethylene dibromide in DOT Specification 5B metal drums.	2

Number	Purpose	Reason
7928	To transport and stow certain hazardous materials on the vehicle deck of passenger vessels.	1
7929	To ship TNT in pellet form in a woven polyethylene outer bag enclosing an inner bag made of polyethylene film.	1
7931	To ship acetone cyanohydrin in a non-specification portable tank meeting IMCO Type 1 specifications.	2
7933	To manufacture, mark and sell a non-specification reusable blow-molded polyethylene container for the shipment of certain corrosive liquids, hydrogen peroxide and flammable liquids.	1
7934	To manufacture, mark and sell a three-piece corrugated fiberboard "Bliss box" built in compliance with DOT Specification 12B.	1
7935	To manufacture, mark and sell DOT Specification 3AA cylinders except for a low silicon content limitation of 0.15 percent.	2
7936	To ship trichloro-s-triazinetrione in DOT Specification 21C250 fiber drums having a maximum net weight of 275 pounds.	2
7937	To ship bromine trifluoride in containers not exceeding one liter capacity bearing only the oxidizer label.	1
7938	To ship certain flammable liquids, corrosive liquids, Class B poisons, combustible liquids and ORM-A materials in a non-specification portable tank which complies with the ASME Code.	2
7939	To ship certain Class B poisonous liquids in a DOT Specification 37M cylindrical steel overpack with an inside DOT Specification 2SL polyethylene container.	2
7940	To manufacture, mark and sell a non-specification reusable rotationally molded polyethylene container for the shipment of certain corrosive liquids and flammable liquids.	1
7941	To manufacture, mark and sell a non-specification seamless high pressure cylinder for the shipment of certain liquefied and nonliquefied compressed gases.	2
7942	To ship gasoline in DOT Specification 17E drums without full compliance with CFR 173.28(m).	2
7943	To ship certain corrosive loquids in fiberboard boxes complying with DOT Specification 12B except for handholes in top flaps.	5
7944	To ship certain flammable liquids, corrosive liquids and combustible liquids in non-specification circular cross section, lined portable tanks, mounted on skids.	1
7945	To ship bromotrifluoromethane pressurized with nitrogen in a non-specification cylinder complying with DOT Specification 4DS with certain exceptions.	2
7946	To ship xenon, nitrogen, argon or helium in a non-specification nonrefillable stainless steel or aluminum pressure vessel.	2
7947	To ship monomethylamine, dimethylamine, or trimethylamine in DOT Specification 105A300W and 112A340 tank cars equipped with higher safety relief valve settings.	1
7948	To manufacture, mark and sell a non-specification single compartment cargo tank for the shipment of certain flammable and corrosive liquids.	2
7949	To ship indigo dye paste in a collapsible rubber container called "SEALDTANK."	1
7950	To ship a certain flammable solid which is also a Class B poison in fiber drums containing up to 350 pounds of product.	2
7951	To ship aerosol food product in a non-refillable metal container complying with DOT Specification 2P with certain exceptions.	2
7952	To ship phosphorus tribromide in non-specification lead-lined steel drums.	2
7953	To ship wet benzoyl peroxide in inside containers containing up to 25 pounds of products.	1

Number	Purpose	Reason
7954	To transport a certain nonflammable gas mixture in DOT Specification 3A2400 or 3AA2400 cylinders in manifolded arrangements.	1
7957	To manufacture, mark and sell a non-specification cargo tank made of aluminum instead of steel for the shipment of carbon dioxide.	2
7959	To transport recreational vehicles containing certain flammable and nonflammable gases on the vehicle deck of ferries and passenger vessels.	1
7961	To ship propylene oxide in DOT Specification 114A340W tank cars.	2
7962	To ship a liquid cleaning compound in a DOT Specification 37M/2U composite packaging.	1
7963	To ship perchloromethyl mercaptan in portable tanks complying with DOT Specification 51 except they are made of monel.	2
7966	To ship paint and varnish remover in DOT Specification 12B fiberboard boxes having inside steel containers not exceeding one gallon capacity.	5
7969	To manufacture, mark and sell a non-specification single compartment cargo tank for the shipment of liquid and semi-solid waste materials containing flammable and corrosive liquids.	2
7971	To manufacture, mark and sell a non-specification cylinder for the shipment of monobromotrifluoromethane or monobromotrifluoromethane and nitrogen.	1
7972	To ship certain Class A and Class B explosives in a special shipping container without placarding the vehicle.	1
7974	To ship arsenic acid solution in DOT Specification 103CW tank cars.	2
7978	To ship sonobouys containing lithium batteries in motor vehicles without placards when the gross weight of sonobouys is less than 1,000 pounds.	1
7983	To ship small lithium cells under specified conditions essentially without regulation.	1
7984	To ship certain oxidizers, n.o.s., in DOT Specification 105A200ALW tank cars.	2
7985	To manufacture, mark and sell a non-specification vacuum insulated portable tank for the shipment of liquefied nitrogen.	1
7987	To ship a dry organic phosphate mixture in five ply natural kraft multiwall bag having a minimum basis weight of 250 pounds.	2
7989	To ship thionyl chloride in non-specification inside containers overpacked in a DOT Specification 19A wooden box.	2
7990	To ship trichloro-s-triazinetrione in inside polyethylene film bags overpacked in a DOT Specification 12A or 12B fiberboard box.	2
7991	To transport railway track torpedoes and railway fusees in flagging kits essentially without regulation.	1
7992	To ship phosphorus pentasulfide in DOT Specification 56 portable tanks having a maximum gross weight of 7,700 pounds.	2
7994	To ship phosphorus pentasulfide in DOT Specification 56 portable tanks having a maximum gross weight of 7,700 pounds.	2
7996	To ship methyl isocyanate in cylinders constructed to DOT Specification 4BW225 except for the use of 304 stainless steel.	2
7997	To ship bromine chloride in a non-specification lead lined portable tank meeting IMCO Type I specifications.	2
7998	To ship sodium persulfate in non-specification composite polyethylene paper bags.	1

Number	*Purpose*	*Reason*
7999	To ship motor vehicles and mechanized equipment powered by internal combustion engines fueled by combustible liquids by cargo vessel under certain conditions.	1
8000	To ship certain flammable liquids, corrosive liquids, irritating materials, poison B liquids and combustible liquids in non-specification portable tanks meeting IMCO Type I specifications.	2
8002	To ship certain flammable liquids, Class B poisonous liquids, combustible liquids and ORM-A materials in non-specification portable tanks meeting IMCO Type 2 specifications.	2
8003	To ship organic peroxide solids and pastes in inside open-head polyethylene containers overpacked in a DOT Specification 12B fiberboard box.	2
8004	To ship a solid arsenical compound in DOT Specification 17C removable heads drums.	2
8005	To ship hydrogen peroxide solutions not exceeding 70 percent by weight in non-specification portable tanks meeting IMCO Type I specifications.	2
8006	To ship toy caps in unlabeled packages by motor vehicles without placards under certain conditions.	1
8008	To manufacture, mark and sell a non-specification aerosol container for the shipment of limited quantities of a compressed gas containing flammable propellant gas.	1
8009	To ship or transport natural gas in DOT Specification 3AAX2400 cylinders which are manifolded and securely mounted on a motor vehicle.	1
8010	To ship a chemical kit containing sulfuric acid in an inside molded plastic container overpacked in a DOT Specification 12A20 fiberboard box.	2
8012	To ship hydrogen peroxide solution not exceeding 70 percent by weight in non-specification portable tanks meeting IMCO Type I specifications.	2
8013	To ship certain nonliquefied flammable and nonflammable gases in a DOT Specification 4E240 cylinder for sampling purposes.	2
8014	To ship methyl bromide or methyl bromide mixtures in tin-plated aerosol cans overpacked in DOT Specification 12A fiberboard boxes.	1
8015	To ship certain oxidizers, corrosives and Class B poisonous liquids in non-specification portable tanks.	2
8016	To ship or transport certain Class A and Class C explosives in passenger-carrying aircraft and helicopters under certain conditions.	1
8017	To ship a certain methanethane mixture in DOT Specification 3AX, 3AAX, or 3T cylinders which are manifolded in a tube trailer frame.	2
8019	To ship sodium potassium alloy in a non-specification fiberboard box.	2
8020	To ship liquid chloropicrin in a seamless DOT Specification 39 non-reusable cylinder made of 1100 aluminum alloy.	1
8021	To ship methyl methacrylate, monomer, inhibited in non-specification portable tanks.	2
8023	To manufacture, mark and sell a non-specification seamless aluminum cylinder for the shipment of certain compressed gases.	1
8025	To ship magnesium salt coated granules in water-tight, sift-proof, covered hopper rail cars and motor vehicles.	1
8027	To ship refrigerating machines described as air conditioning machines.	1
8029	To manufacture, mark and sell a non-specification two-piece "Bliss Style" fiberboard box for which DOT Specification 12B packaging is prescribed.	2
8030	To ship charged oil well perforating guns with a detonating fuze attached to one end.	1

Number	Purpose	Reason
8034	To ship certain flammable and nonflammable gases and certain radioactive materials in a non-specification container described as a spectrometer.	1
8035	To ship oil well cartridges in a specially designed inside plastic tube overpacked in a DOT Specification 12B fiberboard box.	1
8037	To manufacture, mark and sell a non-specification fiberboard drum for the shipment of nitrocellulose.	2
8039	To ship hexachlorocyclopentadiene in a DOT Specification 51 portable tank mounted in an ISO Type frame.	2
8044	To ship certain flammable and corrosive liquids in marine portable tanks.	2
8045	To manufacture, mark and sell a DOT Specification 12P fiberboard box having as an exception, two inner DOT Specification 2U polyethylene containers.	2
8046	To ship silicon chloride or silicon tetrachloride in a non-specification portable tank mounted in an ISO frame.	1
8047	To ship certain flammable liquids, corrosive liquids, poison B liquids, combustible liquids and ORM-A materials in non-specification portable tanks.	1
8048	To ship natural gas in a non-specification stainless steel cylinder.	1
8049	To ship military explosives with labels which have been overprinted with the appropriate IMCO Class, Division and compatibility group.	5
8050	To ship sulfur hexafluoride in specifically described machines under certain conditions.	1
8051	To manufacture, mark and sell a non-specification reusable, blow-molded polyethylene container for the shipment of certain corrosive liquids.	1
8052	To ship limited quantities of calcium carbide in water-tight metal cans overpacked in DOT Specification 12B fiberboard boxes.	2
8053	To ship monoethylamine in inside glass bottles/metal can packagings overpacked in a DOT Specification 12B fiberboard box.	2
8055	To ship dibasic lead phosphite in DOT Specification 44C multiwall paper bag of 50-pound capacity.	2
8056	To ship certain flammable, corrosive, Class B poisons, and combustible liquids and oxidizing materials in a non-specification portable tank mounted in an ISO frame.	1
8057	To ship certain flammable, corrosive, Class B poisons, and combustible liquids and oxidizing materials in a non-specification portable tank mounted in an ISO frame.	1
8059	To manufacture, mark and sell a non-specification filament-wound reinforced plastic aluminum lined cylinder for the shipment of compressed air or oxygen.	1
8060	To ship certain nonflammable liquefied gases in a non-specification portable tank mounted in an ISO frame.	2
8062	To ship a passive restraint system containing a mixture of a flammable solid and a Class B explosive as a flammable solid.	1
8063	To manufacture, mark and sell a vacuum insulated DOT Specification 4L welded cyclinder for the shipment of carbon dioxide or nitrous oxide.	2
8064	To ship thionyl chloride in DOT Specification 56 metal drums not exceeding 30-gallon capacity.	2
8065	To ship certain Class A and B explosives in a non-specification plywood box.	2
8067	To ship sulfuric acid, 95-98 percent in a DOT Specification 34 polyethylene container of 15-gallon capacity.	1

Number	Purpose	Reason
8070	To ship propellant explosives in water in DOT Specification 17H steel drums not exceeding 30-gallon capacity.	2
8071	To ship sodium potassium alloy in DOT Specification 51 portable tanks.	1
8072	To ship a dry organic phosphate compound mixture in DOT Specification 12B fiberboard boxes with inside DOT Specification 2D paper bags.	2
8073	To ship or transport natural gas in DOT Specification 3AA2400 cylinders made of 4130X steel, manifolded and securely mounted on a motor vehicle.	2
8074	To ship certain flammable and nonflammable gases in a DOT Specification 3E cylinder without a safety device.	1
8077	To manufacture, mark and sell a non-specification steel drum for the shipment of silicon tetrachloride or trichlorosilane.	4
8078	To ship a Class B rocket motor having a gross weight of 3,300 pounds by cargo aircraft.	3
8079	To manufacture, mark and sell a DOT Specification 2SL inside polyethylene container having a higher density and melt index resin than presently authorized.	1
8080	To ship chromic acid, solid in a DOT Specification 105A300W tank car converted to DOT Specification 111A100W and equipped with a sparger system.	1
8081	To ship Class B rocket motors having a gross weight not exceeding 3,000 pounds by cargo-only aircraft.	3
8082	To ship liquefied carbon dioxide in a non-specification portable tank exceeding the weight limitation for cargo-only aircraft.	3
8083	To authorize stowage of carbon bisulfide or carbon disulfide and nickel carbonyl under conditions approved by the Captain of the Port.	1
8084	To ship a water-gel high explosive containing more than 5 percent moisture under specified conditions.	1
8086	To ship certain flammable and combustible liquids in a non-specification welded aluminum tank overpacked in a wooden outside container.	2
8087	To ship a certain water reactive solid in DOT Specification 56 portable tanks.	1
8088	To manufacture, mark and sell DOT Specification 5 and 6 series steel drums fitted with rolling hoops of round-pipe section instead of I-bar section.	1
8090	To ship or transport natural gas in DOT Specification 3AA2400 cylinders made of 4130X steel, manifolded and securely mounted on a motor vehicle.	2
8091	To ship metallic mercury in heat sealed glass vials which are incorporated into mercury relays and attached to circuit boards.	1
8092	To ship ammonium persulfate in non-specification fiber drums equivalent to DOT Specification 21C-115.	2
8093	To ship liquefied methane in a non-specification vacuum insulated demountable portable tank having a water capacity of 105 gallons.	2
8094	To ship certain oxidizers and corrosive liquids in DOT Specification 56 portable tanks.	2
8095	To ship not more than 20 milligrams of desensitized cyclotrimethylenetrinitramine containing radioactive carbon in a glass vial overpacked in a DOT Specification 7A container.	1
8096	To manufacture, mark and sell a non-specification steel cylinder for the shipment of certain nonliquefied, nonflammable compressed gases.	1

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Number	Purpose	Reason
8097	To ship sodium hydrosulfite in polyethylene bags inside a metal can overpacked in DOT Specification 12B boxes.	1
8098	To ship wet benzoyl peroxide containing at least 25 pounds of water for every 75 pounds of dry benzoyl peroxide in DOT Specification 21C fiberboard drums.	1
8099	To ship a certain poisonous solid in a non-specification "pour-type box."	2
8101	To ship a Class B explosive containing a low specific activity material in the same outside shipping container with a Class A explosive.	1
8105	To manufacture, mark and sell a non-specification 55-gallon open-head steel drum complying with DOT Specification 17H except for marking.	2
8106	To transport certain propellant explosives in water in DOT Specification 6J steel drums not over 55-gallon capacity.	1
8107	To manufacture, mark and sell DOT Specification 3A, 3AA, 3AX, 3AAX, 3E and aluminum cylinders made in accordance with DOT-E 6498 for the shipment of hydrogen.	1
8108	To ship certain corrosive liquids in a DOT Specification 33A expanded polystyrene case with four inside 5-pint glass bottles with vented screw cap closures.	2
8109	To ship certain flammable liquids, corrosive liquids, Class B poisonous liquids, and combustible liquids in non-specification portable tanks.	2
8110	To ship certain corrosive liquids, flammable liquids, and combustible liquids in non-specification IMCO Type 2 portable tanks.	2
8111	To ship a helium-carbon dioxide mixture in a non-specification welded stainless steel cylinder.	1
8113	To ship a certain corrosive liquid in "F" style metal cans of one-gallon capacity overpacked in a DOT Specification 12B boxes.	1
8115	To manufacture, mark and sell a non-specification seamless aluminum cylinder with hoop reinforcement (FRP) for shipment of compressed air.	1
8116	To ship analytical standards containing small quantities of liquid hazardous materials essentially without regulation.	4
8118	To ship certain flammable liquids in a marine portable tank having a capacity of not over 550 gallons.	5
8119	To ship certain corrosive and flammable liquids in non-specification cargo tanks.	2
8120	To transport certain Class A, B, and C explosives by cargo-only aircraft which are not permitted for shipment by air, or are in quantities greater than presently authorized.	3
8121	To ship a compound cleaning liquid in DOT Specification 57 portable tanks.	1
8123	To ship various corrosive liquids, and flammable liquids in inside DOT Specification 2E containers or metal cans overpacked in a non-specification double-walled molded PE "Versa Vat."	1
8125	To ship certain flammable and nonflammable gases and flammable liquids in non-specification portable tanks.	2
8126	To ship certain liquefied petroleum gases and other gases classed as flammable gases and a flammable liquid in non-specification portable tanks.	2
8127	To ship flammable liquids and a flammable solid in non-specification fiberboard drums.	1
8129	To ship corrosive liquid waste material in bottles not over 1-gallon capacity overpacked in DOT Specification 17H or 6J 55-gallon drums.	1
8130	To ship sulfur, solid in a sift-proof designed freight container equipped with grain doors.	1

Number	Purpose	Reason
8131	To ship oxygen in a non-specification container having a maximum internal capacity of 95 inches.	2
8132	To ship beryllium compound, n.o.s., in non-specification wooden boxes.	2
8134	To ship nitric acid and perchloric acid in glass bottles closed with liner-less polypropylene caps overpacked in DOT Specification 12R boxes.	1
8136	To ship phosphoric acid solution in a DOT Specification 57 portable tank.	1
8137	To ship blasting caps in DOT Specification 12H fiberboard boxes without the inside container.	1
8138	To ship waste sludge contaminated with a Class B poison in a non-specification steel box under emergency conditions.	4
8139	To ship trichloro-s-triazinetrione in non-specification polyethylene pails overpacked in non-specification fiberboard boxes.	2
8140	To ship or transport natural gas in DOT Specification 3AAX2400 cylinders manifolded and securely mounted on a motor vehicle.	1
8141	To ship large lithium batteries in air-ride suspension vans inder specified conditions.	1
8144	To ship spirits of nitroglycerin in packagings prescribed in 49 CFR 173.133(a)(1).	1
8145	To manufacture, mark and sell a non-specification wirebound wood/corrugated fiberboard/polyethylene film pallet box for the shipment of arsenic trioxide.	1
8146	To ship sodium azide in DOT Specification 56 portable tanks and a non-specification collapsible flexible container described as Super Sack.	1
8150	To ship an aqueous solution of sodium hypochlorite and calcium hypochlorite mixture in the same vehicle.	1
8151	To manufacture, mark and sell a non-specification removable head polyethylene container for the shipment of corrosive and flammable liquids.	2
8152	To ship 70 percent hydrofluoric acid solution in a nominal 3/8 inch thick steel, unlined DOT Specification MC-312 cargo tank.	1
8153	To transport liquid and semi-solid waste material containing flammable and corrosive liquids in a non-specification cargo tank.	1
8154	To ship spent sulfuric acid in specific DOT Specification 111A100W1 and 111A100W3 tank cars with bottom outlets permanently closed.	1
8156	To ship certain flammable gases in DOT Specification 39 cylinders up to 225 cubic inches.	1
8157	To manufacture, mark and sell a DOT Specification 34 container for the shipment of certain Class B poisonous liquids.	2
8158	To ship wet electric storage batteries in DOT Specification 15A and 15B wooden boxes weighing 26 to 150 pounds each.	2
8159	To ship hydrogen peroxide solution not exceeding 70 percent in non-specification portable tanks.	2
8162	To manufacture, mark and sell a non-specification filament-wound reinforced plastic (FRP) aluminum lined cylinder for the shipment of certain nonflammable compressed gases.	1
8163	To ship certain flammable liquids, corrosive liquids, Class B poisonous liquids, and combustible liquids in non-specification portable tanks.	2
8164	To ship Class C explosive actuating cartridges in non-specification fiberboard boxes.	2
8165	To manufacture, mark and sell a non-specification cylinder made in compliance with DOT Specification 3E with certain exceptions for the shipment of certain nonflammable gases.	1
8166	To ship a certain oxidizer in DOT Specification MC-306, MC-307 and MC-312 cargo tanks.	1

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Number	Purpose	Reason
8167	To ship a chromic acid solution in composite packaging consisting of a non-specification fiberboard outer box and expanded polystyrene/glass bottle inside packagings.	2
8168	To manufacture, mark and sell a non-specification removable-head polyethylene container for the shipment of certain corrosive solids and solid oxidizers.	1
8170	To ship silver oxide, dry powder, in non-specification removable-head stainless steel drums.	2
8171	To ship certain flammable liquids, corrosive liquids, poison B liquids, and combustible liquids in non-specification portable tanks.	2
8174	To transport certain Class A, B, and C explosives by cargo-only aircraft which are not permitted for shipment by air, or are in quantities greater than presently authorized.	3
8175	To ship a benzoyl slurry in a plastic-lined DOT Specification 21C fiber drum.	2
8177	To ship a material corrosive to skin in a non-specification metal can, overpacked with a non-hazardous material, in a DOT Specification 12B fiberboard box.	1
8178	To ship oxygen in a non-specification filament-wound reinforced plastic aluminum lined cylinder.	1
8179	To ship a certain Class B poison solid in a 1000 gallon capacity storage tank.	3
8180	To manufacture, mark and sell a non-specification steel drum for the shipment of a certain flammable liquid and a corrosive material.	1
8181	To manufacture, mark and sell a non-specification expanded polystyrene case complying with DOT Specification 33A except that the case will have six cavities instead of four.	2
8182	To ship an arsenic acid solution in a non-specification portable tank mounted in an ISO frame.	2
8183	To ship a liquid cleaning compound in a modified tight-head fiber drum lined or coated on the inside with a plastic material.	1
8184	To ship flake trinitrotoluene in composite type bags.	1
8185	To manufacture, mark and sell a DOT Specification 12P fiberboard box with two inner 2.5 gallon DOT Specification 2U polyethylene containers.	2
8186	To ship sodium potassium alloy (liquid) in a non-specification fiberboard box.	1
8188	To manufacture, mark and sell a DOT Specification 34 reusable polyethylene container for the shipment of a liquid paint.	1
8189	To ship an organic phosphate compound in DOT Specification MC-311 cargo tanks and 6D/2SL composite packages.	1
8190	To ship dimethyl chlorothiophosphate in a DOT Specification 105A300W tank car.	1
8192	To manufacture, mark and sell a DOT Specification 34 polyethylene container for the shipment of certain Class B poisonous liquids.	2
8194	To ship liquid organic peroxides in a fiberboard box complying with DOT Specification 12B except for closure method and its one-piece, die-cut design.	1
8196	To ship certain compressed gases in a non-specification portable tank mounted in an ISO frame.	1
8197	To manufacture, mark and sell a non-specification 35-gallon polyethylene DOT Specification 34 type container for the shipment of certain corrosive liquids, flammable liquids, poison B liquids, and liquid organic peroxides.	2
8198	To ship medical devices containing small quantities of picric acid and sodium hydroxide in non-specification packagings.	1
8199	To ship liquefied hydrogen chloride in DOT Specification MC-311 cargo tanks.	1
8200	To transport certain Class A and Class C explosives aboard the same aircraft.	3

Number	Purpose	Reason
8203	To ship certain flammable liquids, oxidizers, corrosive liquids, poison B liquids, and combustible liquids in non-specification portable tanks.	2
8204	To authorize use of a shipper furnished short form straight bill of lading which contains a minor variation in the prescribed "certification."	1
8205	To manufacture, mark and sell a non-specification MC-312 cargo tank equipped with an elliptical manway.	1
8206	To ship certain corrosive liquids in two one-quart tin cans, overpacked in a modified 26-gauge DOT Specification 37A drum.	2
8207	To ship certain corrosive liquids in a one-quart tin can placed in a molded polyethylene liner overpacked in a modified 28-gauge unlined DOT Specification 37A drum.	2
8208	To transport a Class A poison, flammable liquid or corrosive liquids in glass capsules, packed with dry ice and overpacked in plywood boxes under emergency conditions.	5
8212	To ship rocket ammunition with inert loaded projectile and rocket ammunition with explosive projectile by cargo-only aircraft.	3
8213	To manufacture, mark and sell a non-specification cargo tank of circular cross-section for the shipment of flammable and corrosive waste material.	1
8214	To ship inflators and modules for passive restraint systems for use in automobiles as flammable solids, n.o.s.	1
8215	To transport certain Class A, B and C explosives in non-specification containers.	3
8216	To transport forty-millimeter ammunition for cannon with explosive projectile by cargo-only aircraft under emergency conditions.	5
8218	To ship certain solid propellant explosives in non-specification Typar bags.	2
8219	To ship solid propellant explosives in non-specification polyethylene-lined polypropylene bags.	2
8220	To ship air or nitrogen in small, high pressure, non-specification girth welded steel cylinders.	1
8221	To ship compressed air or nitrogen in non-specification girth welded steel cylinders for military use only.	3
8222	To ship benzene sulphonyl chloride in a non-specification portable tank mounted in an ISO frame.	2
8228	To transport certain Class C explosives not in excess of 35 grams, overpacked in a DOT Specification 12H fiberboard box under emergency conditions.	4
8229	To ship certain oxidizers in the same vehicle or rail car with blasting agents, n.o.s. and/or ammonium nitrate-fuel mixtures with only the BLASTING AGENTS placard.	1
8230	To ship nitric acid or perchloric acid not exceeding 72 percent strength in non-specification containers.	1
8232	To ship certain compressed gases in a non-specification portable tank mounted in an ISO Type IC frame.	2
8233	To ship liquefied petroleum gas (propane) in a non-specification welded aluminum cylinder.	1
8235	To ship toluene diisocyanate and hexamethylene diisocyanate in a non-specification portable tank mounted in an ISO frame.	2
8236	To ship a passive restraint system containing a Class B explosive as a flammable solid in a DOT Specification 12H65 fiberboard box.	1
8239	To ship a radiation detection system containing boron trifluoride in a non-specification metal pressure envelope.	1

BEST DOCUMENT AVAILABLE

Number	Purpose	Reason
8241	To ship compressed gases specified in 49 CFR 173.34(e)(15)(ii) in DOT Specification 3A or 3AA cylinders and cylinders marked ICC-3, 3A, or 3AA not exceeding 125 pounds of water capacity, except age of cylinder is over 35 years.	2
8242	To transport sodium dichloro-s-triazinetrione or trichloro-s-triazinetrione in non-specification open-head polyethylene containers under emergency conditions.	5
8243	To ship sodium cyanide solid in a non-specification portable tank mounted in an ISO Type I portable tank.	2
8246	To transport helium and neon gases in modified DOT Specification 3E1800 and 3B400 cylinders.	5
8249	To ship certain hazardous materials without the poison label and the transportation of packages bearing the "Dangerous When Wet" label, in motor vehicles which are not placarded "Flammable Solid W."	1
8253	To recondition, convert, mark and sell a non-specification 55-gallon steel drum to an open-head DOT Specification 17H drum except for marking location.	2
8254	To manufacture, mark and sell a non-specification welded steel sphere for the shipment of nitrogen or helium.	2
8255	To manufacture, mark and sell a non-specification welded cylinder for the shipment of compressed air, nitrogen or helium.	2
8256	To ship stabilized sulfur trioxide in DOT Specification 105A100W and 111A100W2 tank cars equipped with standpipe electrical heaters and a modified safety relief device.	1
8258	To manufacture, mark and sell a non-specification seamless aluminum cylinder with hoop reinforcement for the shipment of compressed air enriched with up to 30 percent oxygen.	1
8260	To recondition, convert, mark and sell a non-specification 55-gallon steel drum to an open-head DOT Specification 17H drum except for marking location.	2
8263	To ship liquid propellant explosives in non-specification polyethylene bags overpacked in a DOT Specification 12H65 fiberboard box.	2
8266	To manufacture, mark and sell a DOT Specification 12P fiberboard box having two inner DOT Specification 2U containers of 2.5 gallon capacity.	2
8269	To manufacture, mark and sell a non-specification cargo tank for the shipment of certain liquid flammable and corrosive waste materials.	2
8272	To ship helium in a welded non-specification nonreusable cylinder.	2
8273	To ship a passive restraint module and its inflator containing a Class B explosive as a flammable solid in a non-specification fiberboard box.	1
8278	To manufacture, mark and sell a non-specification container described as mechanical displacement meter provers for the shipment of certain flammable liquids and gases.	1
8279	To ship anhydrous ammonia in a DOT Specification MC-330 cargo tank with a reproduced identification plate.	3
8280	To transport rocket motors by cargo-only aircraft which exceed the weight limitations.	5
8286	To ship liquid nitrogen, oxygen, and argon in cargo tanks equipped with road relief valve set to discharge at not over 25 psig.	1
8290	To ship phosphorus trichloride in a DOT Specification 51 portable tank lined with baked phenolic resin, mounted in an ISO frame.	1
8295	To transport carbon dioxide, liquefied in two non-specification portable tanks in quantities exceeding current limitations.	4
8333	To transport military ammunition under emergency conditions by cargo-only aircraft.	5

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APPENDIX B
HAZARDOUS MATERIALS TRANSPORTATION TECHNOLOGY ASSESSMENTS FOR REPORTS AND PROGRAMS

Research Area	*Sponsoring Element*	*Contract No.*	*Project Topic*	*Performing Organization*	*Project Status*	*Cumulative Funding ($)*
Hazardous Materials Classification	MTB	DOT-RA-82013	New Explosives Hazard Classification Test Criteria	U.S. Bureau of Mines	Continuing	35,000
	MTB	DOT-RA-82014	New Explosives Hazard Classification Test Criteria	Naval Ordinance Station, Indian Head, MD	Continuing	35,000
Cargo Tank Specifications	FHWA/MTB	DOT-FH-11-9494	Methods of Reducing Leakage from Overturned Cargo Tanks	Dynamic Sciences, Inc., Phoenix, AZ	Continuing	215,000
Compliance	MTB/FAA	DOT-RA-82018 Formerly (DOT-AS-40035	Surveillance of Radioactive Materials Shipments	Joint NRC/DOT/ States	Continuing	121,000
Emergency Response	MTB	DOT-RC-82040	Development of a Training Course for Emergency Service Personnel to Handle RAM Transportation Incidents	Canyon Research Group, Inc.	Continuing	76,173
	USCG	CG-24655	Chemical Hazards Response Info. Systems Hazard Assessment Computer System (CHRIS, HACS)	Arthur D. Little	Continuing	1,772,935
	MTB	RC-92057	In-depth Analysis of of Emergency Response to HM Transportation Accidents	ORI, Inc.	March 1980	29,647
	MTB	RC-92058	In-depth HM Emergency & Tank Trucks Inspection Course	Colorado Division of Highway Safety	March 1980	40,000
Hazardous Materials Spills	USCG	CG-75117	Hazardous Chemical Spills—Sulfuric Acid	Brookhaven Lab.	Continuing	325,000
	USCG	CG-816817	Anhydrous Ammonia Spills	Naval Weapons Center China Lake, CA		630,000
Vapor Cloud Explosion	USCG	CG-340750	LNG—Propylene Oxide Vapor Cloud Explosions	Sandia Laboratory	Completed	15,000

BEST DOCUMENT AVAILABLE

APPENDIX B—*Continued*

HAZARDOUS MATERIALS TRANSPORTATION TECHNOLOGY ASSESSMENTS FOR REPORTS AND PROGRAMS

Research Area	*Sponsoring Element*	*Contract No.*	*Project Topic*	*Performing Organization*	*Project Status*	*Cumulative Funding ($)*
Economic Impact Analysis	MTB	DOT-RC-82042	Impact Assessment of the Department of Trasnportation's Proposed Liquefied Natural Gas Safety Regulations	Booze Allen R&D Hamilton, Inc.	Continuing	1,951
Hazardous Materials Packaging	MTB	DOT-AS-40034	Materials and Container Analysis Metallurgical and Physical Testing	National Bureau of Standards	Continuing	276,585
	FRA	AR-40008	Metallurgical Studies Analysis of Tank Car Steels	National Bureau of Standards	Continuing	572,060
	MTB	DOT-AS-50032	Development of Performance-Oriented Packaging Criteria—Carboys and Bags	Naval Surface Weapons Center (White Oak)	Completed	90,000
	MTB	DOT-AS-50033	Testing of Drums and Pails Against Proposed Performance—Oriented Criteria	Naval Surface Weapons Center (White Oak)	Completed	80,000
	MTB	DOT-AS-50074	Development of Criteria for Plastics Packaging for Hazardous Materials	National Bureau of Standards	Completed	315,000
Emergency Response	MTB	RC-92055	HM Transportation Home Study Course	NFPA	January 80	16,007
Hazard Reduction	MTB	DOT-RC-82039	Develop New Approaches to Control Compressed, Liquefied Flammable Gas Releases from Ruptured Bulk Containers	Southwest Research Institute	Continuing	185,000
	USCG	CG-73623	Venting Rate Model	Southwest Research Institute	July 1980	99,000
	USCG	CG-920622	Mixing and Dilution Model	Southwest Research Institute	June 1980	149,000
	USCG/DOE NASA/AGA	CG-822868	LNG Sensor Development	Jet Propulsion Laboratory	December 1980	245,000
	USCG/DOE/ FRA	CG-816817	Anhydrous Ammonia Spills	Naval Weapons Center China Lake, CA	December 1981	630,000

BEST DOCUMENT AVAILABLE

APPENDIX B—*Continued*

HAZARDOUS MATERIALS TRANSPORTATION TECHNOLOGY ASSESSMENTS FOR REPORTS AND PROGRAMS

Research Area	*Sponsoring Element*	*Contract No.*	*Project Topic*	*Performing Organization*	*Project Status*	*Cumulative Funding ($)*
Risk Analysis	MTB	DOT–RC–82037	Assessment of Risks and Risk Control Options Associated with Liquefied Natural Gas Trucking from the Distrigas Terminal, Everett, MA	A.D. Little, Inc.	Completed	108,934
	USCG	CG–33377	Population Vulnerability Model	Enviro Control, Inc.	Completed	700,000
	USCG	CG–74188	Vulnerability Model Enhancement	Enviro Control, Inc.	Completed	100,000
	USCG	DOT–OS–70040	Hazard Modeling	University of Arkansas	Continuing	110,000
Cargo Restraint Systems	USCG/Army		Ship-motion Simulator for the Testing of Containers and Cargo Restraint Systems	U.S. Army	Continuing	100,000

APPENDIX C

HAZARDOUS MATERIALS TRANSPORTATION TECHNOLOGY REPORTS RELEASED IN 1979

Subject Area	*Sponsoring Administration*	*Report Number*	*Report Title*	*Contractor*
Vapor Dispersion	USCG	CG-D-15-80	Dispersion of Vapor from LNG Spills—Simulation in a Meteorological Wind Tunnel of Spills at Lake	Colorado State Univ.
LNG Sensor Development	USCG	CG-D-71-79	Monitoring of LNG Vapor, Phase I	Jet Propulsion Laboratory
Population Vulnerability	USCG	CG-D-38-79	Modifications to the Vulnerability Model, a Simulation System for Assessing Damage Resulting from Marine Spills	Enviro Control, Inc.
LNG Fires	USCG	CG-D-55-79	Experiments Involving Pool and Vapor Fires from Spills of Liquefied Natural Gas on Water	Arthur D. Little, Inc.
Risk Analysis	MTB	DOT-RC-82036	Comparative Risk Analysis of Air Versus other Modes for Shipping Class A Explosives and Liquid Hydrogen	ORI, Inc.

* U.S. GOVERNMENT PRINTING OFFICE: 1982--361-428/2050